

660  
ONR:268: EPB:mn  
N6onr 270, T. O. 13  
Ser 72c  
APR 27 1953

SECOND ENDORSEMENT on SCI/SEA Phil ltr T2(P)238:ag Princeton University dtd  
16 Jan 1953

From: Chief of Naval Research Third  
To: OinC, U. S. Navy Regional Accounts Office, Fourth Naval District

Subj: Contract N6onr-270, T. O. 13, Princeton University, Princeton, New Jersey  
Final Public Voucher No. 8 in the amount of \$1,918.00 and related documents

1. Forwarded to be placed in line for payment, same having been duly certified by the Technical Officer, J. H. Levy, Office of Naval Research Branch Office, New York.
2. Final technical reporting requirements with respect to the research work performed have been properly fulfilled to the satisfaction of the cognizant Scientific Officer.
3. Proper accounting has been made of all Government-owned property furnished for use under subject contract.
4. Contractor has satisfactorily complied with patent provisions of subject contract. Therefore, insofar as patent license provisions are concerned, payment of final settlement may be made.
5. Contractor's Release of the Government, conditioned upon payment to the Contractor of the sum of \$ 7,418.00, of which \$ 5,500.00 having been heretofore paid, has been reviewed and approved as to form by the Contracting Officer.
6. Proper technical certification of the Final Audit Report for subject contract was made on 27 March 1953 by the cognizant Scientific Officer, Dr. F. H. Quimby, Office of Naval Research, Washington 25, D. C.
7. After payment of subject voucher a total of \$7,418.00 will have been paid, leaving no unexpended funds under the Contract.
8. Enclosures (1), (8), and (9) have been retained for the files of this Office.

E. P. BLEDSOE  
By direction

Copy to:  
ONR/ New York  
ONR/Res. Rep.,  
BuSanda(CIS)  
SCI/SEA  
ONR/Codes 510, 264, 260A, 441

L4-3/3P/JHL:eb  
N6onr-270-13  
Ser 1807

MAR 2- 1953

FIRST ENDORSEMENT on SCI/SEA Phila ltr T2(P)238:ag Princeton Univ dtd  
Jan 16 1953

From: Director, Office of Naval Research, New York,  
346 Broadway, New York 13, N. Y.  
To: Chief of Naval Research (Code 268)

Subj: Contract N6onr-270, T.O. 13, Princeton University, Princeton, NJ,  
Final Public Voucher No. 8 dtd 7 Oct 1952 in the amt of \$1918.00  
and related documents; forwarding of

Encl: (8) Contractor's Property Certification dtd 5 Feb 1953 (1 cy)  
(9) Contractor's Invention Statement (orig & 1 cy)

1. Basic correspondence with enclosures thereto and enclosures (8) and  
(9) are forwarded for appropriate action.

2. The Technical Inspector's certification appears on the reverse side  
of enclosure (3) and has been signed by the cognizant representative  
of the Office of Naval Research, New York. The certificate of the Tech-  
nical Officer, which is contained in enclosure (1), is referred to the  
Head, Physiology Branch for signature.

3. Enclosure (8) is the Contractor's Property Certification. This  
office concurs with the contents therein.

4. As indicated in enclosure (9), the contractor certifies that no  
patentable discovery or invention was made in the course of the work.  
This fact is concurred in by the respective Heads of the Patent and  
Scientific Departments as noted by their certifications of said en-  
closure.

5. The final report was forwarded by the contractor to the Office of  
Naval Research, Physiology Branch on 17 December 1952.

6. No classified documents were furnished to the contractor during the  
course of the work.

7. One copy of the final report as well as enclosure (7) and one copy  
each of enclosures (8) and (9) have been retained for the files of the  
Office of Naval Research, New York.

BOB O. MATHEWS

Copy to: Code 264 w/orig encl (8)  
NCI/Princeton U



INVESTIGATIVE  
12(1)238tag  
Princeton Univ.

DEPARTMENT OF THE NAVY  
SUPERVISORY COST INSPECTOR, SOUTHEASTERN AREA  
RITTENHOUSE SQUARE BUILDING  
NINETEENTH AND WALNUT STREETS  
PHILADELPHIA 3, PENNSYLVANIA

JAN 16 1953

From: Supervisory Cost Inspector, USN, Southeastern Area  
To: Chief of Naval Research  
Washington 25, D. C.  
Via: Director, Office of Naval Research  
346 Broadway, New York 13, N. Y.  
Subj: Contract N6onr-27013, The Trustees of Princeton University, Princeton,  
New Jersey - Final Audit Report and Related Documents.  
Encl: (1) Final Audit Report dated 7 October 1952 (orig and 2 copies)  
(2) Final Public Voucher (No. 8) for \$1,918.00 (orig. and 7 copies  
plus two (2) white tissues)  
(3) Contractor's Invoice (orig and 1 copy)  
(4) Contractor's Affidavit of Waiver of Lien (original)  
(5) Contractor's Assignment of Credits and Refunds (orig and 2 copies)  
(6) Contractor's Release of Claims (orig and 2 copies)  
(7) One set of enclosures (1) through (6) for the files of the Director.

1. Enclosures (1) through (6) are forwarded for appropriate action. The Supervisory Cost Inspector has determined the amount of \$7,418.00 to be the allowable cost of performing subject Task Order.

2. The Director of Naval Research is requested to sign the certificate of the Technical Inspector in enclosure (1), and the certificate of the public voucher, enclosure (2) prior to transmission of enclosures (1) through (6), by endorsement to the Chief of Naval Research, Washington 25, D. C. Enclosure (7) is for the files of the Director. It is also requested that a copy of the forwarding endorsement be furnished the Supervisory Cost Inspector, USN, Southeastern Area.

3. In the enclosed voucher the Cost Inspector certifies to the audited and approved amounts of \$1,027.26 and \$1,918.00 which when added to the amounts previously certified to as audited and approved equal \$7,418.00 the total approved under the task order.

4. Attention is invited to the fact that the contractor's Assignment of Credits and Refunds varies from the standard form. The contractor contends that the assignment clause of the form adequately protects the interests of the Government in issues of rebates or refunds.

Copy to:  
ChBuSanda (w/encl(1) thru (6))  
NCIinC B/O SCI SEA Princeton

J. J. GUIDREY

RECEIVED

CERTIFICATE

The undersigned contractor, having completed the work called for by Task Order 11, Contract Number NS-ONR-270, hereby certifies that all materials, supplies and equipment which were furnished to the contractor by the Government for use on the task order, or for which the contractor has been or will be reimbursed by the Government under the terms of the task order, if not specifically included below or on an attached inventory, were expended in performing the work called for by the task order.

**No property obtained under this project.**

The Trustees of Princeton University

**(b) (6)**

Chairman, Department of  
Biology

By

*for*  
**F. H. Johnson**

Professor, Biology Department  
Title Project Leader

Approved:  
for

**(b) (6)**

**George A. Brakeley**  
(Vice President and Treasurer)

Princeton University

**Raymond J. Woodrow**  
Executive Officer and Secretary  
Committee on Project Research & Inventions

Date February 5, 1953



Account A- 733

FINAL  
INVENTION STATEMENT

Contract N6onr-27013

Period June 15, 1950 - September 14, 1952

I hereby certify that, to the best of my knowledge and belief, no inventions, improvements or discoveries, which reasonably appear to be patentable, were conceived or first actually reduced to practice by persons engaged in the performance of the work under Contract N6onr-27013 during the period June 15, 1950 to September 14, 1952, except as follows:

*None*

By

(b) (6)

F. H. JOHNSON

Title Project Leader

Approved

(b) (6)

B

Raymond J. Woodrow

Title Executive Officer and Secretary

Committee on Project Research and Inventions

Approved: ONR Branch Office Patent Counsel (b) (6)

Approved: (b) (6)  
ONR Branch Office Chief Scientist

Account A- 733

FINAL  
INVENTION STATEMENT

Contract N6onn-27013

Period June 15, 1950 - September 14, 1952

I hereby certify that, to the best of my knowledge and belief, no inventions, improvements or discoveries, which reasonably appear to be patentable, were conceived or first actually reduced to practice by persons engaged in the performance of the work under Contract N6onn-27013 during the period June 15, 1950 to September 14, 1952, except as follows:

*None*

By

(b) (6)

F. H. Johnson

Title

Project Leader

Approved:

By

(b) (6)

Raymond J. Woodrow

Title

Executive Officer and Secretary

Committee on Project Research and Inventions

Approved: ONR Branch/Office Patent Counsel

(b) (6)

Approved:

(b) (6)

ONR Branch Office Chief Scientist



Princeton NJ

7 October 1952

The Trustees of Princeton University

Princeton, New Jersey

A-733

FINAL PUBLIC VOUCHER

5/1/52 Salaries  
 To Communications  
 9/14/52 Travel  
 Overhead

(b) (4)

1,918 00

See Contractor's Invoice  
 for Contractor's Certificate

N6onr 27013

11/1/46

1,918.00

See Reverse Side for  
 Cost Inspector's Certificate  
 17X1317.20

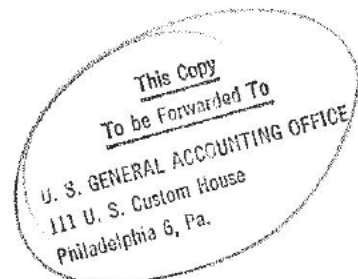
Research Navy

079-46000

See Contractor's Invoice  
 For Technical Certificate

1,918.00

41000





NAVY DEPARTMENT  
BUREAU OF SUPPLIES AND ACCOUNTS  
(COST INSPECTION SERVICE)

FINAL AUDIT REPORT

COST INSPECTION REPORT ON NAVY CONTRACT

NO. N6onr 27013

CONTRACTOR: The Trustees of Princeton University

ADDRESS: Princeton, New Jersey

PERIOD: 15 June 1950 to 14 September 1952



PERIOD: 15 June 1950 to 14 September 1952

Original and 7 copies prepared.

DISTRIBUTION:

1. Supervisory Cost Inspector, U.S.N., Southeastern Area
2. " " " " " "
3. " " " " " "
4. " " " " " "
5. " " " " " "
6. Technical Inspector
7. Navy Cost Inspector-in-Charge, Princeton, New Jersey

OCT 7 1952

\_\_\_\_\_  
Date Submitted

(b) (6)

\_\_\_\_\_  
R. S. MULLIGAN  
Navy Cost Inspector-in-Charge



C O N T E N T S

Comments

Page 1

Summary of Contract Performance

Exhibit (A)

Certificates

Navy Cost Inspector

Supervisory Cost Inspector

Technical Officer

## C O M M E N T S

### Introduction

1. Contract N6onr 27013, dated 26 May 1950, a true cost contract with a fixed rate of overhead, issued under basic contract N6onr 270, was entered into between the Navy Department, Office of Naval Research, and the Trustees of Princeton University, for specified research and development work.
2. Work under the contract commenced on 15 June 1950 and was completed on 14 September 1952, as was authorized by Amendment No. 1 thereto.

### Auditing Procedures

3. The Contractor's accounting procedures and system of internal control were reviewed from time to time during the audit of costs under the contract and were found to be adequate for the purpose of the Navy audit. The audit was conducted in accordance with an audit program which was sufficient in scope and application to justify the propriety of the cost findings set forth in this report.

### Sub-Contracts

4. There were no sub-contracts awarded under this contract.

### Contract Costs

5. Charges in the amount of \$7,418.00 were approved and are summarized on Exhibit (A) of this report. The Contractor concurs in the audit findings as is evidenced by his invoice and final release.
6. There are no problems remaining unsettled as of the date of this report.
7. There are no known potential credits or refunds applicable to this contract. However, the Contractor has executed an Assignment of Credits and Refunds in connection therewith.
8. There are no known unclaimed wages, bond deductions, or unclaimed war bonds in the Contractor's possession arising from wages chargeable to this contract.
9. There were no disallowances taken under this contract.

### Other Remarks

10. The documentary evidence requirements of the General Accounting Office have been complied with. There are no outstanding General Accounting Office Exceptions and the Disbursing Officer has been advised that, in the opinion of the Navy Cost Inspector, none of the approved costs are likely to become the subject of uncleared General Accounting Office Notice of Exception.



10. The documentary evidence requirements of the General Accounting Office have been complied with. There are no outstanding General Accounting Office Exceptions and the Disbursing Officer has been advised that, in the opinion of the Navy Cost Inspector, none of the approved costs are likely to become the subject of uncleared General Accounting Office Notice of Exception.

11. An unqualified release of claims has been executed by the Contractor.

12. There were no facilities acquired or furnished under the contract therefor no property record cards were required.

13. No scrap or residual materials were generated under the contract.

(b) (6)

R. S. MILLIGAN  
Navy Cost Inspector-in-Charge

REVIEWED AND APPROVED

(b) (6)

J. J. GUIDREY, LCDR SC USNR  
Supervisory Cost Inspector, USN, SEA

J. R. ALLEN  
Acting

SUMMARY OF CONTRACT PERFORMANCE

Salaries	(b) (4)
Communications	(b) (4)
Travel	(b) (4)
Total Cost	(b) (4)
Overhead (10% of Total Cost)	*(b) (4)
Total Cost including Overhead	<u>\$7,418.00</u>

Reimbursement to Contractor by Navy

Public Vouchers 1 to 7 inclusive	(b) (4)
Due with this report - Public Voucher No. 8	(b) (4)
	<u>\$7,418.00</u>

Authorized Estimated Cost

Contract	(b) (4)
Amendment #1	(b) (4)
Total	<u>\$7,418.00</u>

Note \* Overhead cost reduced to bring costs within contract limit.



Trustees of Princeton University  
Princeton, New Jersey

Contract: N6onr 27013  
Final Audit Report

CERTIFICATE OF NAVY COST INSPECTOR-IN-CHARGE

The undersigned hereby certifies that the Contractor's books, records and original evidences of cost pertaining to Contract N6onr 27013, have been audited in accordance with the instructions of the Bureau of Supplies and Accounts, and as a result of such audit it has been determined that the amount of \$7,418.00 represents the proper allowable cost of performing said contract in accordance with the terms thereof.

OCT 7 1952

Date

(b) (6)

R. S. MILLIGAN  
Navy Cost Inspector-in-Charge

CERTIFICATE OF THE SUPERVISORY COST INSPECTOR

The undersigned acting for and in behalf of the Bureau of Supplies and Accounts, Department of the Navy, which has been designated to determine the cost of performing Contract N6onr 27013, hereby certifies that the amount of \$7,418.00 has been determined to be the proper allowable cost of performing said contract in accordance with the terms thereof.

JAN 16 1953

Date

(b) (6)

J. R. ALLEN

J. J. GUIDREY, LCDR SC USNR  
Supervisory Cost Inspector  
Southeastern Area

CERTIFICATE OF TECHNICAL OFFICER

The undersigned hereby certifies that to the best of his knowledge and belief, that research and development work performed by the Contractor at a reported cost of \$7,418.00, fully complies with all technical requirements applicable to Contract N6onr 27013, including all applicable regulations and instructions of the Office of Naval Research, and that said contract has been fully and satisfactorily completed.

March 17 1953

(b) (6)

Trustees of Princeton University  
Princeton, New Jersey

Contract: N6omr 27013  
Final Audit Report

COST INSPECTION PERSONNEL HAVING COGNIZANCE OF THE CONTRACT

<u>Name</u>	<u>Grade</u>	<u>Period of Cognizance</u>
(b) (6)	GS-11	Inception to 14 September 1952



NAVY DEPARTMENT  
BUREAU OF SUPPLIES AND ACCOUNTS  
(COST INSPECTION SERVICE)

FINAL AUDIT REPORT

COST INSPECTION REPORT ON NAVY CONTRACT

NO. N6onr 27013

CONTRACTOR: The Trustees of Princeton University

ADDRESS: Princeton, New Jersey

PERIOD: 15 June 1950 to 14 September 1952



DISTRIBUTION:

1. Supervisory Cost Inspector, U.S.N., Southeastern Area
2.     "                 "                 "                 "                 "
3.     "                 "                 "                 "                 "
4.     "                 "                 "                 "                 "
5.     "                 "                 "                 "                 "
6. Technical Inspector
7. Navy Cost Inspector-in-Charge, Princeton, New Jersey

OCT 7 1952

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Date Submitted

R. S. MILLIGAN

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R. S. MILLIGAN  
Navy Cost Inspector-in-Charge



C O N T E N T S

Comments

Page 1

Summary of Contract Performance

Exhibit (A)

Certificates

Navy Cost Inspector

Supervisory Cost Inspector

Technical Officer



## C O M M E N T S

### Introduction

1. Contract N6onr 27013, dated 28 May 1950, a true cost contract with a fixed rate of overhead, issued under basic contract N6onr 270, was entered into between the Navy Department, Office of Naval Research, and the Trustees of Princeton University, for specified research and development work.
2. Work under the contract commenced on 15 June 1950 and was completed on 14 September 1952, as was authorized by Amendment No. 1 thereto.

### Auditing Procedures

3. The Contractor's accounting procedures and system of internal control were reviewed from time to time during the audit of costs under the contract and were found to be adequate for the purpose of the Navy audit. The audit was conducted in accordance with an audit program which was sufficient in scope and application to justify the propriety of the cost findings set forth in this report.

### Sub-Contracts

4. There were no sub-contracts awarded under this contract.

### Contract Costs

5. Charges in the amount of \$7,418.00 were approved and are summarized on Exhibit (A) of this report. The Contractor concurs in the audit findings as is evidenced by his invoice and final release.
6. There are no problems remaining unsettled as of the date of this report.
7. There are no known potential credits or refunds applicable to this contract. However, the Contractor has executed an Assignment of Credits and Refunds in connection therewith.
8. There are no known unclaimed wages, bond deductions, or unclaimed war bonds in the Contractor's possession arising from wages chargeable to this contract.
9. There were no disallowances taken under this contract.

### Other Remarks

10. The documentary evidence requirements of the General Accounting Office have been complied with. There are no outstanding General Accounting Office Exceptions and the Disbursing Officer has been advised that, in the opinion of the Navy Cost Inspector, none of the approved costs are likely to become the subject of uncleared General Accounting Office Notice of Exception.
11. An unqualified release of claims has been executed by the Contractor.

Other Remarks

10. The documentary evidence requirements of the General Accounting Office have been complied with. There are no outstanding General Accounting Office Exceptions and the Disbursing Officer has been advised that, in the opinion of the Navy Cost Inspector, none of the approved costs are likely to become the subject of uncleared General Accounting Office Notice of Exception.

11. An unqualified release of claims has been executed by the Contractor.

12. There were no facilities acquired or furnished under the contract therefor no property record cards were required.

13. No scrap or residual materials were generated under the contract.

R. S. MILLIGAN

R. S. MILLIGAN

Navy Cost Inspector-in-Charge

REVIEWED AND APPROVED

Original signed by J. R. ALLEN  
Acting

J. J. GUIDREY, LCDR SC USNR  
Supervisory Cost Inspector. DSN. SEA



SUMMARY OF CONTRACT PERFORMANCE

Salaries	(b) (4)
Communications	(b) (4)
Travel	(b) (4)
Total Cost	(b) (4)
Overhead (10% of Total Cost)	(b) (4)
Total Cost including Overhead	<u>\$7,418.00</u>

Reimbursement to Contractor by Navy

Public Vouchers 1 to 7 inclusive  
Due with this report - Public Voucher No. 8

(b) (4)  
\$7,418.00

Authorized Estimated Cost

Contract	(b) (4)
Amendment #1	(b) (4)
Total	<u>\$7,418.00</u>

Note \* Overhead cost reduced to bring costs within contract limit.



CERTIFICATE OF NAVY COST INSPECTOR-IN-CHARGE

The undersigned hereby certifies that the Contractor's books, records and original evidences of cost pertaining to Contract N6onr 27013, have been audited in accordance with the instructions of the Bureau of Supplies and Accounts, and as a result of such audit it has been determined that the amount of \$7,418.00 represents the proper allowable cost of performing said contract in accordance with the terms thereof.

OCT 7 1952

R. S. MILLIGAN

Date

R. S. MILLIGAN  
Navy Cost Inspector-in-Charge

CERTIFICATE OF THE SUPERVISORY COST INSPECTOR

The undersigned acting for and in behalf of the Bureau of Supplies and Accounts, Department of the Navy, which has been designated to determine the cost of performing Contract N6onr 27013, hereby certifies that the amount of \$7,418.00 has been determined to be the proper allowable cost of performing said contract in accordance with the terms thereof.

JAN 16 1953

Original signed by J. R. ALLEN  
Acting

Date

J. J. GUIDREY, LCDR SC USNR  
Supervisory Cost Inspector  
Southeastern Area

CERTIFICATE OF TECHNICAL OFFICER

The undersigned hereby certifies that to the best of his knowledge and belief, that research and development work performed by the Contractor at a reported cost of \$7,418.00, fully complies with all technical requirements applicable to Contract N6onr 27013, including all applicable regulations and instructions of the Office of Naval Research, and that said contract has been fully and satisfactorily completed.

Date



Trustees of Princeton University  
Princeton, New Jersey

Contract: N6onr 27013  
Final Audit Report

GOST INSPECTION PERSONNEL HAVING COGNIZANCE OF THE CONTRACT

<u>Name</u>	<u>Grade</u>	<u>Period of Cognizance</u>
(b) (6)	GS-11	Inception to 14 September 1952



NAVY DEPARTMENT  
BUREAU OF SUPPLIES AND ACCOUNTS  
(COST INSPECTION SERVICE)

FINAL AUDIT REPORT

COST INSPECTION REPORT ON NAVY CONTRACT

NO. N6onr 27013

CONTRACTOR: The Trustees of Princeton University

ADDRESS: Princeton, New Jersey

PERIOD: 15 June 1950 to 14 September 1952

C O N T E N T S

Comments

Page 1

Summary of Contract Performance

Exhibit (A)

Certificates

Navy Cost Inspector

Supervisory Cost Inspector

Technical Officer



## C O M M E N T S

### Introduction

1. Contract N6onr 27013, dated 26 May 1950, a true cost contract with a fixed rate of overhead, issued under basic contract N6onr 270, was entered into between the Navy Department, Office of Naval Research, and the Trustees of Princeton University, for specified research and development work.
2. Work under the contract commenced on 15 June 1950 and was completed on 14 September 1952, as was authorized by Amendment No. 1 thereto.

### Auditing Procedures

3. The Contractor's accounting procedures and system of internal control were reviewed from time to time during the audit of costs under the contract and were found to be adequate for the purpose of the Navy audit. The audit was conducted in accordance with an audit program which was sufficient in scope and application to justify the propriety of the cost findings set forth in this report.

### Sub-Contracts

4. There were no sub-contracts awarded under this contract.

### Contract Costs

5. Charges in the amount of \$7,418.00 were approved and are summarized on Exhibit (A) of this report. The Contractor concurs in the audit findings as is evidenced by his invoice and final release.
6. There are no problems remaining unsettled as of the date of this report.
7. There are no known potential credits or refunds applicable to this contract. However, the Contractor has executed an Assignment of Credits and Refunds in connection therewith.
8. There are no known unclaimed wages, bond deductions, or unclaimed war bonds in the Contractor's possession arising from wages chargeable to this contract.
9. There were no disallowances taken under this contract.

### Other Remarks

10. The documentary evidence requirements of the General Accounting Office have been complied with. There are no outstanding General Accounting Office Exceptions and the Disbursing Officer has been advised that, in the opinion of the Navy Cost Inspector, none of the approved costs are likely to become the subject of uncleared General Accounting Office Notice of Exception.
11. An unqualified release of claims has been executed by the Contractor.

12. There were no facilities acquired or furnished under the contract therefor no property record cards were required.

13. No scrap or residual materials were generated under the contract.

R. S. MILLIGAN

R. S. MILLIGAN  
Navy Cost Inspector-in-Charge

REVIEWED AND APPROVED

Original signed by R. ALLEN  
Acting

J. J. GUIDREY, LCDR SC USNR  
Supervisory Cost Inspector. USN, SEA



SUMMARY OF CONTRACT PERFORMANCE

Salaries	(b) (4)
Communications	(b) (4)
Travel	(b) (4)
Total Cost	(b) (4)
Overhead (10% of Total Cost)	*
Total Cost including Overhead	<u>\$7,418.00</u>

Reimbursement to Contractor by Navy

Public Vouchers 1 to 7 inclusive  
Due with this report - Public Voucher No. 8

(b) (4)  
\$7,418.00

Authorized Estimated Cost

Contract	(b) (4)
Amendment #1	(b) (4)
Total	<u>\$7,418.00</u>

Note \* Overhead cost reduced to bring costs within contract limit.

CERTIFICATE OF NAVY COST INSPECTOR-IN-CHARGE

The undersigned hereby certifies that the Contractor's books, records and original evidences of cost pertaining to Contract N6onr 27013, have been audited in accordance with the instructions of the Bureau of Supplies and Accounts, and as a result of such audit it has been determined that the amount of \$7,418.00 represents the proper allowable cost of performing said contract in accordance with the terms thereof.

OCT 7 1952

R. S. MILLIGAN

Date

R. S. MILLIGAN  
Navy Cost Inspector-in-Charge

CERTIFICATE OF THE SUPERVISORY COST INSPECTOR

The undersigned acting for and in behalf of the Bureau of Supplies and Accounts, Department of the Navy, which has been designated to determine the cost of performing Contract N6onr 27013, hereby certifies that the amount of \$7,418.00 has been determined to be the proper allowable cost of performing said contract in accordance with the terms thereof.

JAN 16 1953

Original signed by R. ALLEN  
ing

Date

J. J. GUIDREY, LCDR SC USNR  
Supervisory Cost Inspector  
Southeastern Area

CERTIFICATE OF TECHNICAL OFFICER

The undersigned hereby certifies that to the best of his knowledge and belief, that research and development work performed by the Contractor at a reported cost of \$7,418.00, fully complies with all technical requirements applicable to Contract N6onr 27013, including all applicable regulations and instructions of the Office of Naval Research, and that said contract has been fully and satisfactorily completed.

Date



Trustees of Princeton University  
Princeton, New Jersey

Contract: N6onr 27013  
Final Audit Report

COST INSPECTION PERSONNEL HAVING COGNIZANCE OF THE CONTRACT

<u>Name</u>	<u>Grade</u>	<u>Period of Cognizance</u>
(b) (6)	GS-11	Inception to 14 September 1952

360

PRINCETON UNIVERSITY  
COMMITTEE ON PROJECT RESEARCH AND INVENTIONS

RAYMOND J. WOODROW  
Executive Officer and Secretary

PRINCETON, N.J.

30305

February 19, 1952

*N6onr 27013*

Contract Division  
Office of Naval Research  
Department of the Navy  
Washington 25, D. C.

Attention: R. L. Hubbard, Head, Negotiation Branch

Reference: ONR:262:JR:jk  
N6onr-27013  
8 February 1952

Gentlemen:

In reply to your letter referenced above in connection with theoretical chemistry of biological reactions under the direction of Professor Frank H. Johnson, please note the following:

The Trustees of Princeton represents that it has not employed or retained a company or person (other than a full time employee) to solicit or secure the proposed contract, and agrees to furnish information relating thereto as requested by the Contracting Officer.

Very truly yours,

**(b) (6)**

Raymond J. Woodrow

RJW:ED



PRINCETON UNIVERSITY  
COMMITTEE ON PROJECT RESEARCH AND INVENTIONS

RAYMOND J. WOODROW  
Executive Officer and Secretary

PRINCETON, N.J.

February 19, 1952

Contract Division  
Office of Naval Research  
Department of the Navy  
Washington 25, D. C.

Attention: R. L. Hubbard, Head, Negotiation Branch

Reference: ONR:262:JR:jk  
N6onr-27013  
8 February 1952

Gentlemen:

In reply to your letter referenced above in connection with theoretical chemistry of biological reactions under the direction of Professor Frank H. Johnson, please note the following:

The Trustees of Princeton represents that it has not employed or retained a company or person (other than a full time employee) to solicit or secure the proposed contract, and agrees to furnish information relating thereto as requested by the Contracting Officer.

Very truly yours,

Raymond J. Woodrow

RJW:ED

(Information below applies only to the document which this accompanies)

Contractor The Trustees of Princeton University Amount \$1,918.00

Contract No. N6onr-27013 T.O.  Amend. 1

For: (check one)

Type of Contract (check one)

☒ Research, (Reports)

☐ Development of training devices

☐ Scientific Equipment

☐ Other (state)

- ☐ (1) Fixed Price  
☐ (2) Fixed Price, including price redetermination  
☐ (2a) Fixed Price, with downward revision only  
☐ (3) Fixed Price, including price escalation  
☐ (4) Fixed Price, incentive  
☒ (5) Cost  
☐ (6) Cost Plus Fixed Fee  
☐ (7) Time and Material  
☐ (8) Other (specify)

To be dated not later than:

14 September 1951  
(if applicable, state reason below)

Dollar value being subcontracted. None  
Dollar volume being subcontracted to Small Business. None

NO YES

Statement from Contractor re use of a company or person to solicit X

Have ☐ Have not ☒

☒ Planned Producer  
☒ Planned Item  
☒ Contracting Officer's Statement  
☒ Business Clearance (Navexos-2760)  
☒ Method of Contracting D & F (cost) # 5176  
☒ Is this contract susceptible to Small Business?  
☒ Contract with Small Business  
☒ Government Furnished Material  
☒ Renegotiation applicable to these funds  
☒ Naval Working Fund  
☒ Classified  
☒ Subject to Vinson-Trammel Act  
☒ Subject to Walsh-Healey Act  
☒ Facilities Clearance

3  
214



DISTRIBUTION LIST FINAL

Date of Document

14 Sept 1951

76-27013, a1

Additional copies of all Research and Development Contracts

3 copies

Chief, Reconciliation and Clearance Subdivision, Navy Audit Branch,  
General Accounting Office, 1901 East 13th St., Cleveland, Ohio

1 original

Assistant Chief, Reconciliation and Clearance Subdivision,  
Navy Audit Branch, General Accounting Office, 1901 East 13th St.,  
Cleveland, Ohio (All classified documents)

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fee)

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Commanding Officer, ONR Branch Office

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Commanding Officer, ONR Branch Office  
(San Francisco or Los Angeles)

5 copies

Mr. Lynch, George Washington University  
Rooms 13-15 Staughton Hall,  
707 22d Street, N. W., Washington 6, D. C.

2 copies

Contractor

6 copies

Bureau of Supplies and Accounts, Property Accounting 1 copy  
Division (For contracts having Government furnished material)

Special Devices Center, Sands Point, Port Washington, L. I.

6 copies

Special Devices Liaison - Room T3-1815 - Miss Carr

1 copy

Naval Research Laboratory, Anacostia, Washington  
20, D. C. Attn: Mr. T. M. Hemphill

6 copies

Fiscal Sections - To be listed on DRO

ONR (Decreases only)	1 copy
BuShips	1 copy
BuOrd (Designate cognizant WKA0 on this copy)	1 copy
BuAer	1 copy
BuMed	1 copy
BuPers	2 copies
BuYds and Docks	1 copy
Wright-Patterson Air Force Base	1 copy
- Insurance Branch, EXOS, Mr. Shetley, Room T3-1715 (On all Est. Cost Contracts)	1 copy
Cost Inspection Service, 1331 "I" St., N. W. Washington, D. C. Attn: Mr. R. C. Kiser (On all Est. Cost Contracts)	5 copies
Mr. Pace, Room 1820 (All unclassified documents)	1 copy
Property and Facilities, Code 264	1 copy

Cognizant Section of ONR

Natural Sciences	Earth Sciences	Biological Sciences
Physical Sciences	Naval Sciences	Mathematical Sciences
Material Sciences	Human Resources	1 copy

Special Requests

All documents having BuMed Appropriations  
Finances Division, Naval Medical Center, Building 2  
Room 214, Bethesda, Maryland 1 copy

BuMed, Director, Research Division 1 copy

All documents having BuShips Appropriations  
BuShips, Code 322, Attn: Mrs. Driscoll 1 copy

All documents relating to the contracts listed below  
Office of Fiscal Director  
Room 4B683, Pentagon Building  
Attn: Mr. Nichols 1 copy

MIT - N5ori-60 and Task I thereunder	
NOD 6964 and Task Order I thereunder	
N5ori-78 and all Task Orders thereunder	
N6ori-126	N7onr-321
N6ori-241	N7onr-291 and all Task Orders
N6ori-110	N8onr-648
N6onr-271	Nonr-187(00)
N6ori-131	Nonr-285(00)
N6ori-102	N6onr-279
N6onr-244	N6ori-201
N6onr-231	
N8onr-793	

All documents having Hydrographic Appropriations  
Hydrographic Office, Code 121, Room 218 1 copy  
Suitland, Maryland



DEPARTMENT OF THE NAVY  
OFFICE OF NAVAL RESEARCH  
WASHINGTON 25, D. C.

CONTRACT NUMBER: N6onr-27013  
AMENDMENT NUMBER: 1  
AUTHORITY: NR 119-048/1-15-52  
APPROPRIATION: (See last paragraph hereof)  
INCREASE: \$1,918.00

ONR:262;JR:sjb  
N6onr-27013  
(Biological Sciences  
Division)

The Trustees of Princeton University

Princeton, New Jersey

Gentlemen;

*Rec'd copy clear  
jw ny 3/21*

It is the desire of the Government and the Contractor that additional research on the theoretical chemistry of biological reactions be performed. To accomplish this, there are hereby provided an extension in the period of performance of Task Order N6onr-27013 and an increase in the estimated cost thereof.

In consideration of the foregoing, said Task Order is hereby amended as follows:

1. At the top of the first page, delete the Appropriation and Estimated Cost in their entirety and substitute in lieu thereof the following:

"APPROPRIATIONS: 1701317, Research, Navy, 1950  
(Expenditure Account 46110)  
(Object Classification 079)  
Program Number 41000 - \$ 5,500.00  
  
17X1317.20 Research Navy  
(Expenditure Account 46000)  
(Object Classification 079)  
Program Number 41000 - 1,918.00.

"ESTIMATED COST: \$7,418.00."

2. Delete Section C in its entirety and substitute in lieu thereof the following:

"SECTION C - The estimated cost of the performance of this Task Order is seven thousand four hundred eighteen dollars (\$7,418.00)."

3. Delete Section L in its entirety and substitute in lieu thereof the following:

"SECTION L - The performance of work under this Task Order shall commence on 15 June 1950, and shall be completed on 14 September 1952."

4. Add the following new Sections, effective 15 September 1951:

CONTRACT NUMBER: N6onr-27013  
AMENDMENT NUMBER: 1

"SECTION M - The Contractor agrees to participate in the cost of this Task Order to the extent of providing the services of the Project Director, Dr. Frank H. Johnson (or whosoever else may be designated to replace Dr. Johnson in the performance of this Task Order with the approval of the Scientific Officer) without charge to this Task Order; provided, that the salary of Dr. Johnson for two (2) summer months of 1952 not covered by his academic salary shall be considered an allowable cost hereunder and reimbursement will be made to the Contractor therefor.

"SECTION N - (a) The Contractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of three years after final payment under this contract, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Contractor involving transactions related to this contract.

(b) The Contractor further agrees to include the following provision, with appropriate insertions, in all his subcontracts hereunder:

(Name of Subcontractor) agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of three years after final payment under prime contract (contract symbol and number) between the United States of America and (Name of Contractor) have access to and the right to examine any directly pertinent books, documents, papers, and records of (Name of Subcontractor) involving transactions related to this contract.

(c) The requirements of this clause are in addition to the provisions of any other clause of this contract relating to the records of the Contractor.

"SECTION O - (i) The Government may, by written notice to the Contractor, terminate the right of the Contractor to proceed under this contract if it is found, after notice and hearing, by the Secretary or his duly authorized representative, that gratuities (in the form of entertainment, gifts, or otherwise) were offered or given by the Contractor, or any agent or representative of the Contractor, to any officer or employee of the Government with a view toward securing a contract or securing favorable treatment with respect to the awarding or amending, or the making of any determinations with respect to the performing, of such contract; provided, that the existence of the facts upon which the Secretary or his duly authorized representative makes such findings shall be in issue and may be reviewed in any competent court.

(b) In the event this contract is terminated as provided in paragraph (a) hereof, the Government shall be entitled (i) to pursue the same remedies against the Contractor as it could pursue in the event of a breach of the contract by the Contractor, and (ii) as a penalty in addition to any other damages to which it may be entitled by law, to exemplary damages in an amount (as determined by the Secretary or his duly authorized representative)



CONTRACT NUMBER: N6onr-27013  
AMENDMENT NUMBER: 1

which shall be not less than three nor more than ten times the costs incurred by the Contractor in providing any such gratuities to any such officer or employee.

"(c) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract."

This amendment increases the total estimated cost of Task Order N6onr-27013 by \$1,918.00, which increase is chargeable against Appropriation 17X1317.20 Research Navy (Expenditure Account 46000) (Object Classification 079) Program Number 41000.

CONTRACT NO. N6onr-27013

AMENDMENT NO. 1

This amendment is made pursuant to the provisions of Section 2(a)1 of the Armed Services Procurement Act of 1947 (Public Law 413, 80th Congress), and any required determination and findings with respect thereto has been made.

If the foregoing is acceptable to you, please indicate your acceptance thereof by executing the enclosed two (2) copies of this letter, and return them to the Office of Naval Research, whereupon this letter and your acceptance thereof will constitute this an amendment to the above numbered Task Order.

Sincerely yours,

Contracting Officer  
Office of Naval Research  
Department of the Navy

THE TRUSTEES OF  
ACCEPTED PRINCETON UNIVERSITY  
(Contractor)

WITNESSES:

(1) \_\_\_\_\_

(2) \_\_\_\_\_

By \_\_\_\_\_

NOTE: in the case of a corporation  
witnesses are not required but  
certificate below must be completed.

TITLE \_\_\_\_\_

CERTIFICATE

I, \_\_\_\_\_, certify that I am  
the Secretary of the corporation named as Contractor in the foregoing amendment; that  
Contractor was then  
was duly signed for and in behalf of said corporation by authority of its governing body and is within the scope  
of its corporate powers.

\_\_\_\_\_  
(Signature of person certifying)

(CORPORATE SEAL)



CONTRACT

TASK ORDER

PRINCETON

3/26

N6omr-27013

1

Contractor: The Trustees of Princeton University

Code	Date and Initials	Comments
262-E	2/7/52 (b) (6)	
262K	2/7/52 (b) (6)	
262J	2/19/52 (b) (6)	
262	2/26/52 (b) (6)	
106	(b) (6) 3/6/52	It is suggested
262-E		that new Military
262K	Proofed: (b) (6) Read by: (b) (6) 3-11-52	Security Requirements
	Recorded 3/1/52 In (b) (6) Out 3-20-52 (b) (6)	clauses be incorporated
262J (Page Check)	(b) (6) 3/19/52	in accord with
260A		Cerenzels memo of
265	(b) (6) 3-20-52 (b) (6) 3/21	19 November 1951 to
260	3/24 (b) (6)	Director, Central Div
265	(b) (6) 3/24	(b) (6)
441	additional copies	marked - no HSR required
		No access to classified material required for performance of this contract. (b) (6)

CLEARANCE MEMORANDUM

NR 119-048/1-15-52  
Contract N6onr-27013  
Amendment Number 1

Unclassified  
7 February 1952

The Trustees of Princeton University  
Princeton, New Jersey

1. Negotiations

Under this Task Order, Princeton University (hereinafter referred to as the Contractor) has been performing services since 1 June 1950, and the present completion date is 15 September 1951.

Under date of 18 December 1951, Contractor submitted a written proposal for an extension of this Task Order, and the allocation of additional funds thereto. By Procurement Justification dated 15 January 1952, the Scientific Officer has forwarded Contractor's aforementioned written proposal for action by the Contract Division.

2. Description of the Work

Generally, Contractor is conducting research on the theoretical chemistry of biological reactions. Detailed information regarding the work is set forth in clearance memorandum dated 10 May 1950. During the proposed period of extension, this work will be completed and will, for the most part, afford an opportunity for the Principal Investigator to work on the completion of the manuscript of the monograph. No change in the scope of the work is involved.

3. Information Regarding the Contractor

Sufficient information regarding the Contractor is likewise set forth in the clearance memorandum of 10 May 1950 and therefore requires no restatement at this time.

4. Analysis of the Cost Estimate

Two months salary for Professor Johnson	<div style="background-color: black; color: red; padding: 10px; display: inline-block;">(b) (4)</div>
Travel Expenses	
Indirect Expenses (10% of total direct costs)	
TOTAL	\$ 1,918.00

The Scientific Officer advises that there will be no unexpended funds upon the present completion date of the Task Order.

5. Overhead

Section D of the Task Order provides for a fixed overhead rate of 10% of the total costs, exclusive of costs incurred under Section D. Such rate is fixed for the life of the Task Order.



CLEARANCE MEMORANDUM (Cont'd)  
Contract N6onr-27013  
Amendment Number 1

6. Other Pertinent Information

By letter dated this day, Contractor has been requested to submit the required statement as to the non-solicitation of this contract.

It may be noted that, during the proposed period of extension, the Principal Investigator is to be compensated only for his two summer months. Accordingly, it would seem that a Participation clause to that effect should be inserted in the Task Order.

Since work under this contract involves no access to classified materials, the Military Security Requirements clause is being omitted. However, the Examination of Records clause and the Gratuities clause should be added to the Task Order.

7. Authority

Authority for the negotiation of this amendment is to be found in Section 2(c)(1) of the Armed Services Procurement Act of 1947.

8. Reasonableness

In the opinion of the undersigned, the terms and conditions hereinabove set forth appear to be fair, reasonable and in the best interest of the Government.

(b) (6)

J. Richman, Negotiator

/jk

CLEARANCE MEMORANDUM

NR 119-048/1-15-52  
Contract N6onr-27013  
Amendment Number 1

Unclassified  
7 February 1952

The Trustees of Princeton University

Princeton, New Jersey

1. Negotiations

Under this Task Order, Princeton University (hereinafter referred to as the Contractor) has been performing services since 1 June 1950, and the present completion date is 14 September 1951.

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4. Analysis of the Cost Estimate

Two months salary for Professor Johnson  
Travel Expenses  
Indirect Expenses (10% of total direct costs)  
TOTAL

(b) (4)  
\$ 1,918.00

The Scientific Officer advises that there will be no unexpended funds upon the present completion date of the Task Order.

5. Overhead

Section D of the Task Order provides for a fixed overhead rate of 10% of the total costs, exclusive of costs incurred under Section D. Such rate is fixed for the life of the Task Order.



CLEARANCE MEMORANDUM (Cont'd)  
Contract N6onr-27013  
Amendment Number 1

6. Other Pertinent Information

By letter dated this day, Contractor has been requested to submit the required statement as to the non-solicitation of this contract.

It may be noted that, during the proposed period of extension, the Principal Investigator is to be compensated only for his two summer months. Accordingly, it would seem that a Participation clause to that effect should be inserted in the Task Order.

Since work under this contract involves no access to classified materials, the Military Security Requirements clause is being omitted. However, the Examination of Records clause and the Gratuities clause should be added to the Task Order.

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Authority for the negotiation of this amendment is to be found in Section 2(c)(1) of the Armed Services Procurement Act of 1947.

8. Reasonableness

In the opinion of the undersigned, the terms and conditions hereinabove set forth appear to be fair, reasonable and in the best interest of the Government.

J. Richman, Negotiator

/jk

CLEARANCE MEMORANDUM

NR 119-048/1-15-52  
Contract N6onr-27013  
Amendment Number 1

Unclassified  
7 February 1952

The Trustees of Princeton University  
Princeton, New Jersey

1. Negotiations

Under this Task Order, Princeton University (hereinafter referred to as the Contractor) has been performing services since 1 June 1950, and the present completion date is 14 September 1951.

Under date of 18 December 1951, Contractor submitted a written proposal for an extension of this Task Order, and the allocation of additional funds thereto. By Procurement Justification dated 15 January 1952, the Scientific Officer has forwarded Contractor's aforementioned written proposal for action by the Contract Division.

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4. Analysis of the Cost Estimate

Two months salary for Professor Johnson  
Travel Expenses  
Indirect Expenses (10% of total direct costs)  
TOTAL

(b) (4)  
\$ 1,918.00

The Scientific Officer advises that there will be no unexpended funds upon the present completion date of the Task Order.

5. Overhead

Section D of the Task Order provides for a fixed overhead rate of 10% of the total costs, exclusive of costs incurred under Section D. Such rate is fixed for the life of the Task Order.



CLEARANCE MEMORANDUM (Cont'd)  
Contract N6onr-27013  
Amendment Number 1

6. Other Pertinent Information

By letter dated this day, Contractor has been requested to submit the required statement as to the non-solicitation of this contract.

It may be noted that, during the proposed period of extension, the Principal Investigator is to be compensated only for his two summer months. Accordingly, it would seem that a Participation clause to that effect should be inserted in the Task Order.

Since work under this contract involves no access to classified materials, the Military Security Requirements clause is being omitted. However, the Examination of Records clause and the Gratuities clause should be added to the Task Order.

7. Authority

Authority for the negotiation of this amendment is to be found in Section 2(c)(1) of the Armed Services Procurement Act of 1947.

8. Reasonableness

In the opinion of the undersigned, the terms and conditions hereinabove set forth appear to be fair, reasonable and in the best interest of the Government.

J. Richman, Negotiator

/jk

DEPARTMENT OF THE NAVY  
OFFICE OF NAVAL RESEARCH  
WASHINGTON 25, D. C.

CONTRACT NUMBER: N6onr-27013  
ALTERNATE NUMBER: 1  
AUTHORITY: NR 119-018/1-15-52  
APPROPRIATION: (See last paragraph hereof)  
INCREASE: \$1,918.00

OLR:262:12:  
N6onr-27013  
(Biological  
Sciences  
Division)

The Trustees of Princeton University

Princeton, New Jersey

Gentlemen:

It is the desire of the Government and the Contractor that additional research on the theoretical chemistry of biological reactions be performed. To accomplish this, there are hereby provided an extension in the period of performance of Task Order N6onr-27013 under Contract N6onr-270 and an increase in the estimated cost thereof.

In consideration of the foregoing, said Task Order is hereby amended as follows:

1. At the top of the first page, delete the Appropriation and Estimated Cost in their entirety and substitute in lieu thereof the following:

"APPROPRIATIONS: 1701317, Research, Navy, 1950 (Expenditure Account 46110) (Object Classification 079) Program Number 41000	- \$ 5,500.00
17X1317.20 Research Navy (Expenditure Account 46000) (Object Classification 079) Program Number 41000	= 1,918.00.

"ESTIMATED COST: \$7,418.00."

2. Delete Section C in its entirety and substitute in lieu thereof the following:

"SECTION C - The estimated cost of the performance of this Task Order is seven thousand four hundred eighteen dollars (\$7,418.00)."

3. Delete Section L in its entirety and substitute in lieu thereof the following:

"SECTION L - The performance of work under this Task Order shall commence on 15 June 1950, and shall be completed on 14 September 1952."

4. Add the following new Sections, effective 15 September 1951:



CONTRACT NUMBER: N6onr-27013  
AMENDMENT NUMBER: 1

"SECTION M - The Contractor agrees to participate in the cost of this Task Order to the extent of providing the services of the Project Director, Dr. Frank H. Johnson (or whosoever else may be designated to replace Dr. Johnson in the performance of this Task Order with the approval of the Scientific Officer) without charge to this Task Order; provided, that ~~x~~ the salary of Dr. Johnson for two (2) summer months of 1952 not covered by his academic salary shall be considered an allowable cost hereunder and reimbursement will be made to the Contractor therefor."

"SECTION N -

(A) The Contractor agrees that the Comptroller General of the United States

"(a) The Government may, by written notice to the Contractor, terminate the right of the Contractor to proceed under this contract if it is found, after notice and hearing, by the Secretary or his duly authorized representative, that gratuities (in the form of entertainment, gifts, or otherwise) were offered or given by the Contractor, or any agent or representative of the Contractor, to any officer or employee of the Government with a view toward securing a contract or securing favorable treatment with respect to the awarding or amending, or the making of any determinations with respect to the performing, of such contract; provided, that the existence of the facts upon which the Secretary or his duly authorized representative makes such findings shall be in issue and may be reviewed in any competent court.

This amend  
\$1,918.00,  
(Expenditu

rch Navy

-----  
Date \_\_\_\_\_  
/jk  
"(b) In the event this contract is terminated as provided in paragraph (a) hereof, the Government shall be entitled (i) to pursue the same remedies against the Contractor as it could pursue in the event of a breach of the contract by the Contractor, and (ii) as a penalty in addition to any other damages to which it may be entitled by law, to exemplary damages in an amount (as determined by the Secretary or his duly authorized representative) which shall be not less than three nor more than ten times the costs incurred by the Contractor in providing any such gratuities to any such officer or employee.

"(c) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract."

CONTRACT NUMBER: N6onr-27013  
AMENDMENT NUMBER: 1

"SECTION M - The Contractor agrees to participate in the cost of this Task Order to the extent of providing the services of the Project Director, Dr. Frank H. Johnson (or whosoever else may be designated to replace Dr. Johnson in the performance of this Task Order with the approval of the Scientific Officer) without charge to this Task Order; provided, that ~~x~~ the salary of Dr. Johnson for two (2) summer months of 1952 not covered by his academic salary shall be considered an allowable cost hereunder and reimbursement will be made to the Contractor therefor. ~~II~~

"SECTION N -

"SECTION O -

This amendment increases the total estimated cost of Task Order N6onr-27013 by \$1,918.00, which increase is chargeable against Appropriation 17X1317.20 Research Navy (Expenditure Account 46000) (Object Classification 079) Program Number 41000.

APPROVED BY:

Date 7 Feb. 1952

(b) (6)

Scientific Officer

(b) (6)

C. J. Michman, Negotiator

/jk



SECTION I - BASIC DATA

1. ONR DIRECTING AGENCY - BRANCH AND CODE <b>Physiology Branch - Code 441</b>		2. SECURITY CLASSIFICATION OF TASK <b>Unclassified</b>	3. DATE <b>15 January 1952</b>
4. TASK NO. NR <b>NR 119-048</b>	5. CONTRACT NO. <b>N60nr-27013</b>	7. (A) PROJECT NO. NR <b>NR 119-000</b>	(B) OPERATIONAL REQUIREMENTS NO. <b>BR-03800</b>
6. SHORT TITLE OF TASK <b>Theoretical Chemistry of Biological Reactions.</b>		(C) PROJECT TITLE (If task contributes to two or more projects, list projects and explain, if necessary) <b>Physical Factors in Biological Systems</b>	
9. NAME AND ADDRESS OF CONTRACTOR TO PERFORM WORK <b>Princeton University Princeton, New Jersey</b>		8. THIS TASK ALSO SUPPORTS OPERATIONAL REQUIREMENTS <b>None</b>	
10. PRINCIPAL INVESTIGATOR(S) <b>Dr. Frank H. Johnson</b>		14. INDICATE WHICH OF FOLLOWING APPLIES TO THIS TASK <input type="checkbox"/> NEW <input type="checkbox"/> ACCELERATION <input checked="" type="checkbox"/> RENEWAL <input type="checkbox"/> EXTENSION <input type="checkbox"/> OVER-RUN	
11. NUMBER OF PARTICIPATING SCIENTISTS PROFESSIONAL <b>2</b> GRADUATE STUDENTS <b>0</b>		15. ESTIMATED COMPLETION DATE OF TASK <b>14 September 1952</b>	
12. ONR TASK SUPERVISOR (Name and code) <b>Elizabeth K. Kelly</b>		16. ESTIMATED DURATION (This commitment of funds) FROM <b>14 September 1951</b> TO <b>14 September 1952</b>	
13. ONR COOPERATING BRANCHES (Financial support only)			

17. SOURCE OF FUNDS FOR THIS COMMITMENT			19. FOR FISCAL DIVISION USE ONLY				
	AMOUNT OF COMMITMENT	FY	APPROPRIATION	AUTHORIZATION NO.	PROGRAM OR CONTROL NO.	EXPENDITURE ACCOUNT	OBJECT CLASS
ONR	\$1,918.00R	1952	17X1317.00		41000	46000	079
OTHER AGENCIES							
(b) (6)							
18. If funds are transferred FROM another source to ONR, fill out Supplement A (NAVECOS-3235). If ONR funds are to be transferred to another bureau or agency to make this contract, name agency, and fill out Supplement B (NAVECOS-3235).			FUNDS COMMITTED		ACCOUNTING CLASSIFICATION		
AMOUNT			\$ 1,918.00		<input checked="" type="checkbox"/> FORMAL OBLIGATION		
DATE			1/22/52		<input type="checkbox"/> INFORMAL OBLIGATION		
BY			(b) (6)				

20. COMMITMENTS OF FUNDS ALREADY MADE AND/OR PLANNED							
	FY	ONR	ALL OTHERS		FY	ONR	ALL OTHERS
PAST	1950	\$ 5,500	\$	CURRENT		\$	\$
PAST				FUTURE		None	
PAST				FUTURE			

SECTION II - APPROVAL			
21. APPROVED BY:	BRANCH:	DATE:	
(a) <b>F. H. Quimby</b>	(Head) <b>Physiology</b>	<b>15 Jan 1952</b>	
(b) <b>O. E. Reynolds</b>	(Director) <b>Biological Sciences</b>		
EXECUTIVE COM.	DATE	ASSISTANT DIRECTOR FOR RESEARCH	DATE



1. General Justification - This task is concerned with the theoretical aspects of the Parent Project, "Physical Factors Operating in Biological Systems." The particular aim of this task is to explain the modern theory of absolute reaction rates with specific reference to its application in the investigation and understanding of biological phenomena. This is in part an attempt to interest the biological scientists more directly in the latest scientific advances in the fields of physics and chemistry. The results should substantially aid basic research in biochemistry, biophysics, physiology, pharmacology, bacteriology and other fields of biology or medicine. When completed, the results will be published in the form of a monograph.

2. Scientific Justification - Although the theory of absolute reaction rates is now extensively used in both theoretical and applied research in chemistry and related fields, it is not yet generally familiar among investigators of biological problems. It should be possible through the proposed work to eliminate some of the continuing lag between the advances of biology and the physical and chemical sciences. The physical chemical theory will be set forth including adequate mathematical details but with sufficient discussion to make it more genuinely understandable along with specific applications to biological reactions. No comprehensive treatment of this sort is available at present.

3. Contract Description of Work - This task is concerned with a theoretical study of the origin and meaning of the modern reaction rate theory and its application to various biological phenomena such as muscle contraction, permeability, nerve activity, photosynthesis, etc. The final results will be published in monograph form.

4. Basis for Selection of Contractor - The chief investigator is well qualified for this study.

It is requested that the Contracting Officer indicate to the Contractor the desirability of assigning certain Naval personnel, either Regular or Reserve, to duty in connection with the investigations to be conducted by the Contractor for the purpose of receiving instruction in this type of work. It is understood that such assignments will be made only with the full consent of the Contractor.

1. CONTRACT NUMBER	2. DATE	3. PROJECT TITLE	4. CONTRACTOR NAME	5. CONTRACT TYPE	6. CONTRACT VALUE	7. CONTRACT PERIOD	8. CONTRACT STATUS
100-100-000	1945	PHYSICAL FACTORS OPERATING IN BIOLOGICAL SYSTEMS	NAVY	RESEARCH	\$50,000	1945-1946	COMPLETED

10. SOURCE OF FUNDS FOR THIS CONTRACT

11. FOR LIST OF RESEARCHERS SEE G-1

12. SUMMARY OF RESEARCH RESULTS

13. SUMMARY OF RESEARCH RESULTS

14. SUMMARY OF RESEARCH RESULTS

15. SUMMARY OF RESEARCH RESULTS

16. SUMMARY OF RESEARCH RESULTS

17. SUMMARY OF RESEARCH RESULTS

18. SUMMARY OF RESEARCH RESULTS

19. SUMMARY OF RESEARCH RESULTS

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21. SUMMARY OF RESEARCH RESULTS

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24. SUMMARY OF RESEARCH RESULTS

25. SUMMARY OF RESEARCH RESULTS

26. SUMMARY OF RESEARCH RESULTS

27. SUMMARY OF RESEARCH RESULTS



441.

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PRINCETON UNIVERSITY  
COMMITTEE ON PROJECT RESEARCH AND INVENTIONS

RAYMOND J. WOODROW  
Executive Officer and Secretary

PRINCETON, N.J.

December 18, 1951

Physiology Branch  
Biological Sciences Division  
Office of Naval Research  
Department of the Navy  
Washington 25, D. C.

Attention: Dr. F. H. Quimby

Subject: Extension of Contract N6onr-27013, Project NR 119-048

Gentlemen:

The subject contract expired September 14, 1951. It is our understanding from Professor F. H. Johnson that you have indicated it might be possible to extend this contract for an additional year to cover primarily expenses for Professor Johnson to work on completion of the manuscript of the monograph during the summer of 1952. Please therefore accept this letter as a proposal for such an extension.

The budget for this extension would be approximately as follows:

Two months salary for Professor Johnson

Travel Expenses

Indirect Expenses (10% of total direct costs)

Total

\$ 1,918.00

I believe that Professor Johnson mentioned a smaller figure to you based on his summer salary of \$1,300.00 of a year ago, forgetting that his base salary has now been increased. He has agreed to go along with the smaller salary if you believe this cannot be increased, as indicated in the budget above.

The Trustees of Princeton University represents that it has not employed or retained a company or person (other than a full-time employee) to solicit or secure this contract, and agrees to furnish information relating thereto as requested by the Contracting Officer.

Very truly yours,

(b) (6)

Raymond J. Woodrow

RJW:ED

cc: Commanding Officer, ONR, New York  
Professor F. H. Johnson

*Check if not previously noted for*

71-27013  
DISTRIBUTION LIST - FINAL

Date of Document 26 May 1950

Additional copies of all Research and Development Contracts 2 copies

Chief, Reconciliation and Clearance Subdivision, Navy Audit Branch,  
General Accounting Office, 1901 East 13th St., Cleveland, Ohio

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GAO, Washington, D. C. (On all cost-plus fixed fee or cost without  
fee)

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D&F (If required)

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Code OD-4, Room 1312, Arlington Annex (To be listed on DRO)

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Contractor

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excluding contracts for Training Films or strictly services

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1 copy

Naval Research Laboratory, Anacostia, Washington 20, D. C. 6 copies  
Attn: Mr. Sanders



Fiscal Sections - To be listed on DRO

CNR

BuShips

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BuPers

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Wright-Patterson Air Force Base

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(On all Est. Cost Contracts)

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Cost Inspection Service, Room 0211 - Main Navy, BuSandA  
Attn: Mr. R. C. Kiser (on all Est. Cost Contracts)

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Mr. Pace, Room 1820 (All unclassified contracts, etc.)

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NRL, Code 1700 - Mr. Bedore

~~1 copy~~

Project Status

~~1 copy~~

Section Heads of Divisions

Natural Sciences, Code 409

Biological Sciences, Code 440

Earth Sciences, Code 410

Human Resources Division,

Mathematical Sciences, Code 430

Code 450

Naval Sciences, Code 460

~~1 copy~~

SPECIAL REQUEST

All documents having BuMed Appropriations  
Finances Division, Naval Medical Center, Building 2  
Room 214, Bethesda, Maryland, Attn: Miss Judd

1 copy

All documents having BuShips Appropriations  
BuShips, Code 363, Attn: Miss Frechette

1 copy

All documents relating to the contracts listed below:

1 copy

MIT - N5ori-60 and Task Order I thereunder

NOD 6964 and Task Order I thereunder

N5ori-78 and all Task Orders thereunder

N6ori-126

N6ori-241

N6ori-110

N6onr-271

N6ori-131

N6onr-231

N6ori-102

N6onr-244

Office of Fiscal Director  
Room 4B683, Pentagon Building  
Attn: Mr. Nichols

1 copy

RESEARCH AND DEVELOPMENT TASK ORDER

CONTRACTOR: The Trustees of Princeton University  
AUTHORITY: NR 119-048/4-17-50 (Biological Sciences Division)  
APPROPRIATION: 1701317, Research, Navy, 1950 (Expenditure Account 46110)  
(Object Classification 079) Program Number 41000  
ESTIMATED COST: \$5,500.00

This Task Order is established under, and constitutes a part of, Contract N6onr-270, which sets forth the basic contract provisions applicable hereto. In case of any conflict between the provisions of said Contract N6onr-270 and the provisions hereof, the latter shall control.

SECTION A - The Contractor shall furnish the necessary personnel and facilities for and, in accordance with any instructions issued by the Scientific Officer or his authorized representative, shall conduct research on the theoretical chemistry or biological reactions. This research shall include, but not necessarily be limited to:

- (a) the origin and meaning of the modern reaction rate theory;
- (b) application of the theory in connection with various biological phenomena; and
- (c) a theoretical consideration of some fundamental problems, particularly muscle contraction, permeability nerve activity, photosynthesis and possibly others.

SECTION B - The Scientific Officer under this Task Order is the Head, Physiology Branch, Biological Sciences Division, Office of Naval Research.

SECTION C - The estimated cost of the performance of this Task Order is five thousand five hundred dollars (\$5,500.00).

SECTION D - Notwithstanding the provisions of Section 4(a)(7) of the contract to the contrary, the percentage to be applied with respect to this Task Order shall be a fixed rate of ten percent (10%) of the total cost of the work to be performed under this Task Order exclusive of costs incurred under this Section. Notwithstanding any provisions of the contract to the contrary, said rate shall remain fixed for the life of this Task Order.

It is understood by and between the parties hereto that the overhead rate expressed herein represents less than actual cost reimbursement for indirect expenses. The difference between the expressed overhead rate and the actual cost rate experienced by the Contractor represents a sharing on the part of the Contractor of the total estimated cost of this Task Order.



SECTION E - The Contractor shall submit final reports, and such other reports as may be required by the Scientific Officer hereunder. These reports shall, in detail, be issued as indicated below:

PERIODIC STATUS REPORTS may be issued at intervals not greater than three months; the exact periods will be specified by the Scientific Officer in consultation with the Contractor and the Branch Office.

TECHNICAL REPORTS may be issued when a definite phase of a project has been completed, or when significant information has been obtained which merits wider distribution.

FINAL REPORTS, issued at the completion of this Task Order, shall summarize the results obtained, and shall contain a listing therein of Technical Reports and publications which have been issued during the course of the work being performed hereunder.

SECTION F - The Contractor, in connection with the performance of this Task Order, shall not employ any persons undergoing sentences of imprisonment at hard labor which have been imposed by courts of the several states, territories or municipalities having criminal jurisdiction.

SECTION G - The Contractor agrees that there will be delivered under this contract only such unmanufactured articles, materials, and supplies (which term "articles, materials, and supplies" is hereinafter referred to in this clause as "supplies") as have been mined or produced in the United States, and only such manufactured supplies as have been manufactured in the United States substantially all from supplies mined, produced, or manufactured, as the case may be, in the United States. Pursuant to the Buy American Act (41 U. S. Code 10 a-c), the foregoing provision shall not apply (i) with respect to supplies excepted by the Secretary from the application of that Act, (ii) with respect to supplies for use outside the United States, (iii) with respect to the supplies to be delivered under this contract which are of a class or kind determined by the Secretary or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, or (iv) with respect to such supplies, from which the supplies to be delivered under this contract are manufactured, as are of a class or kind determined by the Secretary or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, provided that this exception (iv) shall not permit delivery of supplies manufactured outside the United States if such supplies are manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality.



SECTION E - The Contractor shall submit final reports, and such other reports as may be required by the Scientific Officer hereunder. These reports shall, in detail, be issued as indicated below:

PERIODIC STATUS REPORTS may be issued at intervals not greater than three months; the exact periods will be specified by the Scientific Officer in consultation with the Contractor and the Branch Office.

TECHNICAL REPORTS may be issued when a definite phase of a project has been completed, or when significant information has been obtained which merits wider distribution.

FINAL REPORTS, issued at the completion of this Task Order, shall summarize the results obtained, and shall contain a listing therein of Technical Reports and publications which have been issued during the course of the work being performed hereunder.

SECTION F - The Contractor agrees to provide instruction with respect to work to be performed under this Task Order to Naval personnel assigned by the Department of the Navy and acceptable to the Contractor.

SECTION G - The Contractor, in connection with the performance of this Task Order, shall not employ any persons undergoing sentences of imprisonment at hard labor which have been imposed by courts of the several states, territories or municipalities having criminal jurisdiction.

SECTION H - The Contractor agrees that there will be delivered under this contract only such unmanufactured articles, materials, and supplies (which term "articles, materials, and supplies" is hereinafter referred to in this clause as "supplies") as have been mined or produced in the United States, and only such manufactured supplies as have been manufactured in the United States substantially all from supplies mined, produced, or manufactured, as the case may be, in the United States. Pursuant to the Buy American Act (41 U. S. Code 10 a-c), the foregoing provision shall not apply (i) with respect to supplies excepted by the Secretary from the application of that Act, (ii) with respect to supplies for use outside the United States, (iii) with respect to the supplies to be delivered under this contract which are of a class or kind determined by the Secretary or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, or (iv) with respect to such supplies, from which the supplies to be delivered under this contract are manufactured, as are of a class or kind determined by the Secretary or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, provided that this exception (iv) shall not permit delivery of supplies manufactured outside the United States if such supplies are manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality.

old 7/7/50



SECTION H - In addition to the requirements set forth in Section 3 of the contract, entitled "Subcontracts and Purchase Orders", the Contractor shall give advance notification to the Contracting Officer or his authorized representative before entering into any subcontract or purchase order incident to the performance of this Task Order which

(i) is on a cost or cost-plus-fixed-fee basis, or

(ii) is on a fixed-price basis exceeding in dollar amount \$25,000.00 or 5% of the total estimated cost of this Task Order.

SECTION I - Termination by the Government: In lieu of the provisions of Section 10 of the contract, entitled "Termination by the Government," the following provision shall be applicable to this Task Order:

The performance of work under this Task Order may be terminated by the Government whenever the Contracting Officer shall determine that such action is for the best interests of the Government. If this Task Order is so terminated, the Government shall reimburse the Contractor for the costs and expenses specified in subparagraphs (1), (2), and (3) of paragraph (d) of the Uniform Termination Article, which is set forth in paragraph 932 of the War and Navy Department Joint Termination Regulation, to the extent that the provisions of said Uniform Termination Article may be applicable to the work hereunder.

SECTION J - In the event that the work under this Task Order is terminated in whole, or from time to time in part, at the option of the Government pursuant to the provisions of Section I of this Task Order, the Government shall not be obligated to pay to the Contractor any amount for anticipatory profits resulting from the termination or cancellation of any subcontract or order relating to this Task Order.

SECTION K - Notwithstanding any provisions of subsection 4(a)(4) of the contract to the contrary, the Contractor shall be reimbursed under this Task Order for the transportation expenses of persons engaged in the performance of this Task Order, plus the reasonable actual subsistence expense in an amount not exceeding ten dollars (\$10.00) per person per day, of such persons, incurred during periods of travel, or, at the Contractor's option, an allowance in lieu of actual subsistence expenses of such persons not exceeding nine dollars (\$9.00) per person for each calendar day or major fraction thereof during the period of travel; Provided, That, expenses for transportation hereunder by motor vehicle other than common carrier or rented automobile shall be reimbursed on a reasonable actual expense basis or, at the Contractor's option, on a mileage basis at a rate not to exceed seven cents (7¢) per mile; Provided, Further, that in no event shall reimbursement under this Section be made to the Contractor at rates exceeding those allowed by the Contractor to similar employees engaged upon work other than work under Government contracts.

SECTION L - The performance of work under this Task Order shall commence on 15 June 1950, and shall be completed on 14 September 1951.



SECTION I - In addition to the requirements set forth in Section 3 of the contract, entitled "Subcontracts and Purchase Orders, the Contractor shall give advance notification to the Contracting Officer or his authorized representative before entering into any subcontract or purchase order incident to the performance of this Task Order which

(i) is on a cost or cost-plus-fixed-fee basis, or

(ii) is on a fixed-price basis exceeding in dollar amount \$25,000.00 or 5% of the total estimated cost of this Task Order.

SECTION J - Termination by the Government: In lieu of the provisions of Section 10 of the contract, entitled "Termination by the Government," the following provision shall be applicable to this Task Order:

The performance of work under this Task Order may be terminated by the Government whenever the Contracting Officer shall determine that such action is for the best interests of the Government. If this Task Order is so terminated, the Government shall reimburse the Contractor for the costs and expenses specified in subparagraphs (1), (2), and (3) of paragraph (d) of the Uniform Termination Article, which is set forth in paragraph 932 of the War and Navy Department Joint Termination Regulation, to the extent that the provisions of said Uniform Termination Article may be applicable to the work hereunder.

SECTION K - In the event that the work under this Task Order is terminated in whole, or from time to time in part, at the option of the Government pursuant to the provisions of Section J of this Task Order, the Government shall not be obligated to pay to the Contractor any amount for anticipatory profits resulting from the termination or cancellation of any subcontract or order relating to this Task Order.

SECTION L - Notwithstanding any provisions of subsection 4(a)(4) of the contract to the contrary, the Contractor shall be reimbursed under this Task Order for the transportation expenses of persons engaged in the performance of this Task Order, plus the reasonable actual subsistence expense in an amount not exceeding ten dollars (\$10.00) per person per day, of such persons, incurred during periods of travel, or, at the Contractor's option, an allowance in lieu of actual subsistence expenses of such persons not exceeding nine dollars (\$9.00) per person for each calendar day or major fraction thereof during the period of travel; Provided, That, expenses for transportation hereunder by motor vehicle other than common carrier or rented automobile shall be reimbursed on a reasonable actual expense basis or, at the Contractor's option, on a mileage basis at a rate not to exceed seven cents (7¢) per mile; Provided, Further, that in no event shall reimbursement under this Section be made to the Contractor at rates exceeding those allowed by the Contractor to similar employees engaged upon work other than work under Government contracts.

SECTION M - The performance of work under this Task Order shall commence on 15 June 1950, and shall be completed on 14 September 1951.

*add 7/7/50*



NAVEDROS 2155-17-1 (Rev. 10-67) CONTRACT NUMBER: N6onr-27013

/Section 2(c)5 of the Armed  
Services Procurement Act of  
1947 (Public Law 413, 80th Con-  
gress), and any required determination and findings with respect thereto has been made.

This negotiated Task Order is entered into pursuant to the provisions of the execution of this Task Order by the Contractor and the Government shall constitute this Task Order a part of Contract N6 onr-270, and be the agreement of the parties for the performance of the work herein specified, in accordance with the terms of such contract. In the event of any conflict between the terms contained in the parts of this contract, those contained in the Task Order shall be controlling with respect to the work to be performed thereunder.

IN WITNESS WHEREOF the parties hereto have executed this Task Order as of the day and year first above written.

### UNITED STATES OF AMERICA

By \_\_\_\_\_

Contracting Officer  
Office of Naval Research  
Department of the Navy

### WITNESSES:

(1) \_\_\_\_\_

Contractor

(2) \_\_\_\_\_

By \_\_\_\_\_

NOTE: In the case of a corporation  
witnesses are not required but  
certificate below must be completed.

TITLE \_\_\_\_\_

\_\_\_\_\_  
(Business Address of Contractor)

### CERTIFICATE

I, \_\_\_\_\_, certify that I am  
the Secretary of the corporation named as Contractor in the foregoing Task  
Order; that \_\_\_\_\_, who signed said Task Order on behalf of the  
Contractor was then \_\_\_\_\_ of said corporation; that said Task  
Order was duly signed for and in behalf of said corporation by authority of its governing body and is within the  
scope of its corporate powers.

\_\_\_\_\_  
(Signature of person certifying)

(CORPORATE SEAL)

ONE:262:713  
H600-27013

REF

F 13160

JUL 10 1950

262 J  
The Trustees of Princeton University

Princeton, New Jersey

(b) (6) 7/7/50  
Gentlemen:

262 F  
(b) (6) 7/7/50  
In compliance with the request contained in your letter GAB:RJMig dated 1 June 1950, the proposed Section F of Task Order H600-27013, containing provisions for instruction of Naval personnel thereunder, has been deleted in its entirety and the remaining Sections relettered accordingly. One (1) copy each of the revised pages 2 and 3 of the aforementioned Task Order is being forwarded herewith to be substituted in the copy of the document retained by you.

261  
It is requested that you indicate your acceptance of the Task Order, as revised, by signing the acceptance form on the enclosed copy of this letter and returning it to this Office, Attention: Code 265.

Sincerely yours,

F. M. REYNOLDS, JR.  
By Direction

Encl:

- (1) One (1) copy each revised pages 2 and 3 of Task Order H600-27013
- (2) CC this letter

ACCEPTED: \_\_\_\_\_

(Contractor)

Copy to

ONE Branch Office, New York, N.Y.  
(with 2 copies each revised page)

Code 260

Code 262J

BY \_\_\_\_\_

TITLE \_\_\_\_\_



PRINCETON UNIVERSITY  
PRINCETON, NEW JERSEY

GEORGE A. BRAKELEY  
Vice-President and Treasurer

265 Jan File

June 1, 1950

Office of Naval Research  
Department of the Navy  
Washington 25, D. C.

Attn: Code 265

Subj: Research Contract N6onr-27013

Gentlemen:

Returned herewith are two executed copies of the subject Task Order covering research on Theoretical Chemistry of Biological Reactions under Professor Frank H. Johnson of our Department of Biology. Please note that, in accordance with our verbal discussion, our acceptance of this Task Order is conditional upon the deletion of Section F.

Thank you for your consideration.

Very truly yours,

(b) (6)

George A. Brakeley

GAB:RJW:g

Encls: 2 copies of Contract N6onr-27013

Approved by Physiology Branch

(b) (6)

SECTION E - The Contractor shall submit final reports, and such other reports as may be required by the Scientific Officer hereunder. These reports shall, in detail, be issued as indicated below:

PERIODIC STATUS REPORTS may be issued at intervals not greater than three months; the exact periods will be specified by the Scientific Officer in consultation with the Contractor and the Branch Office.

TECHNICAL REPORTS may be issued when a definite phase of a project has been completed, or when significant information has been obtained which merits wider distribution.

FINAL REPORTS, issued at the completion of this Task Order, shall summarize the results obtained, and shall contain a listing therein of Technical Reports and publications which have been issued during the course of the work being performed hereunder.

SECTION F - The Contractor, in connection with the performance of this Task Order, shall not employ any persons undergoing sentences of imprisonment at hard labor which have been imposed by courts of the several states, territories or municipalities having criminal jurisdiction.

SECTION G - The Contractor agrees that there will be delivered under this contract only such unmanufactured articles, materials, and supplies (which term "articles, materials, and supplies" is hereinafter referred to in this clause as "supplies") as have been mined or produced in the United States, and only such manufactured supplies as have been manufactured in the United States substantially all from supplies mined, produced, or manufactured, as the case may be, in the United States. Pursuant to the Buy American Act (41 U. S. Code 10 a-c), the foregoing provision shall not apply (i) with respect to supplies excepted by the Secretary from the application of that Act, (ii) with respect to supplies for use outside the United States, (iii) with respect to the supplies to be delivered under this contract which are of a class or kind determined by the Secretary or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, or (iv) with respect to such supplies, from which the supplies to be delivered under this contract are manufactured, as are of a class or kind determined by the Secretary or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, provided that this exception (iv) shall not permit delivery of supplies manufactured outside the United States if such supplies are manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality.



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SECTION G - The Contractor, in connection with the performance of this Task Order, shall not employ any persons undergoing sentences of imprisonment at hard labor which have been imposed by courts of the several states, territories or municipalities having criminal jurisdiction.

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ced 7/7



SECTION H - In addition to the requirements set forth in Section 3 of the contract, entitled "Subcontracts and Purchase Orders, the Contractor shall give advance notification to the Contracting Officer or his authorized representative before entering into any subcontract or purchase order incident to the performance of this Task Order which

(i) is on a cost or cost-plus-fixed-fee basis, or

(ii) is on a fixed-price basis exceeding in dollar amount \$25,000.00 or 5% of the total estimated cost of this Task Order.

SECTION I - Termination by the Government: In lieu of the provisions of Section 10 of the contract, entitled "Termination by the Government," the following provision shall be applicable to this Task Order:

The performance of work under this Task Order may be terminated by the Government whenever the Contracting Officer shall determine that such action is for the best interests of the Government. If this Task Order is so terminated, the Government shall reimburse the Contractor for the costs and expenses specified in subparagraphs (1), (2), and (3) of paragraph (d) of the Uniform Termination Article, which is set forth in paragraph 932 of the War and Navy Department Joint Termination Regulation, to the extent that the provisions of said Uniform Termination Article may be applicable to the work hereunder.

SECTION J - In the event that the work under this Task Order is terminated in whole, or from time to time in part, at the option of the Government pursuant to the provisions of Section I of this Task Order, the Government shall not be obligated to pay to the Contractor any amount for anticipatory profits resulting from the termination or cancellation of any subcontract or order relating to this Task Order.

SECTION K - Notwithstanding any provisions of subsection 4(a)(4) of the contract to the contrary, the Contractor shall be reimbursed under this Task Order for the transportation expenses of persons engaged in the performance of this Task Order, plus the reasonable actual subsistence expense in an amount not exceeding ten dollars (\$10.00) per person per day, of such persons, incurred during periods of travel, or, at the Contractor's option, an allowance in lieu of actual subsistence expenses of such persons not exceeding nine dollars (\$9.00) per person for each calendar day or major fraction thereof during the period of travel; Provided, That, expenses for transportation hereunder by motor vehicle other than common carrier or rented automobile shall be reimbursed on a reasonable actual expense basis or, at the Contractor's option, on a mileage basis at a rate not to exceed seven cents (7¢) per mile; Provided, Further, that in no event shall reimbursement under this Section be made to the Contractor at rates exceeding those allowed by the Contractor to similar employees engaged upon work other than work under Government contracts.

SECTION L - The performance of work under this Task Order shall commence on 15 June 1950, and shall be completed on 14 September 1951.



SECTION ~~H~~ - In addition to the requirements set forth in Section 3 of the contract, entitled "Subcontracts and Purchase Orders, the Contractor shall give advance notification to the Contracting Officer or his authorized representative before entering into any subcontract or purchase order incident to the performance of this Task Order which

(i) is on a cost or cost-plus-fixed-fee basis, or

(ii) is on a fixed-price basis exceeding in dollar amount \$25,000.00 or 5% of the total estimated cost of this Task Order.

SECTION ~~I~~ Termination by the Government: In lieu of the provisions of Section 10 of the contract, entitled "Termination by the Government," the following provision shall be applicable to this Task Order:

The performance of work under this Task Order may be terminated by the Government whenever the Contracting Officer shall determine that such action is for the best interests of the Government. If this Task Order is so terminated, the Government shall reimburse the Contractor for the costs and expenses specified in subparagraphs (1), (2), and (3) of paragraph (d) of the Uniform Termination Article, which is set forth in paragraph 932 of the War and Navy Department Joint Termination Regulation, to the extent that the provisions of said Uniform Termination Article may be applicable to the work hereunder.

SECTION ~~J~~ - In the event that the work under this Task Order is terminated in whole, or from time to time in part, at the option of the Government pursuant to the provisions of Section ~~I~~ of this Task Order, the Government shall not be obligated to pay to the Contractor any amount for anticipatory profits resulting from the termination or cancellation of any subcontract or order relating to this Task Order.

SECTION ~~K~~ - Notwithstanding any provisions of subsection 4(a)(4) of the contract to the contrary, the Contractor shall be reimbursed under this Task Order for the transportation expenses of persons engaged in the performance of this Task Order, plus the reasonable actual subsistence expense in an amount not exceeding ten dollars (\$10.00) per person per day, of such persons, incurred during periods of travel, or, at the Contractor's option, an allowance in lieu of actual subsistence expenses of such persons not exceeding nine dollars (\$9.00) per person for each calendar day or major fraction thereof during the period of travel; Provided, That, expenses for transportation hereunder by motor vehicle other than common carrier or rented automobile shall be reimbursed on a reasonable actual expense basis or, at the Contractor's option, on a mileage basis at a rate not to exceed seven cents (7¢) per mile; Provided, Further, that in no event shall reimbursement under this Section be made to the Contractor at rates exceeding those allowed by the Contractor to similar employees engaged upon work other than work under Government contracts.

SECTION ~~L~~ - The performance of work under this Task Order shall commence on 15 June 1950, and shall be completed on 14 September 1951.

Contract #6 over 27013

Code  
25  
25  
441  
6/6 (b) (6)  
6/19 (b) (6)

Returned signed subject to changes (b) (6)

Deletion of Section F as requested by the Contractor, is satisfactory to the Physiology Branch

OK Quincy

262 F Suggest change be made as requested by Princeton (b) (6) 6/19/50  
262 J

Report of Obligation



Contractor Princeton University Amount \$5,500.00

Contract Number N6onr- 27013 T. O. - Amend. -

For: (check one) ☒ Research  
☐ Development of training devices  
☐ Scientific Equipment  
☐ Other \_\_\_\_\_ (state)

To be dated not later than 1 June 1950 (if applicable, state reason below)

<u>YES</u>		<u>NO</u>
_____	Negotiation Clearance (Navexos-2759)	<u>X</u>
_____	Negotiation D & F	<u>X</u>
_____	Contracting Officers Statement	<u>X</u>
_____	Business Clearance (Navexos-2760)	<u>X</u>
<u>X</u>	Method of Contracting D & F (cost) <u>#3200</u>	<u>✓</u>
_____	Advance Payment Clearance	<u>X</u>
_____	Advance Payment D & F	<u>X</u>
_____	Contract with Small Business	<u>X</u>
_____	Government Furnished Material in Contract	<u>X</u>
_____	Renegotiation clause in Contract	<u>X</u>
_____	Naval Working Fund	<u>X</u>
_____	Classified	<u>X</u>
_____	Subject to Vinson-Trammel Act	<u>X</u>
_____	Subject to Walsh-Healy Act	<u>X</u>
_____	Authority under A.S.P.R. <u>3.205</u>	

If authority other than A.S.P.R., state \_\_\_\_\_

*Return only to changes 6/6  
acceptance 7/7/50*

(b) (6)  
D. B. Packwood (Negotiator)



DEPARTMENT OF THE NAVY  
OFFICE OF NAVAL RESEARCH  
WASHINGTON 25, D. C.

10509

IN REPLY REFER TO  
EXOS:ONR:265

N6onr-27013

MAY 29 1950

The Trustees of  
Princeton University  
Business Office  
Princeton, New Jersey

Subject: Research Contract N6onr-27013.

Gentlemen:

Three copies of the subject task order have been executed by the Government and are forwarded herewith for execution by you. It is requested that two of the executed copies be returned to this Office, Attention: Code 265. The third executed copy of the task order may be retained by you for information and files.

Your prompt advice will be appreciated if for any reason you cannot return the two execution copies within ten days.

Very truly yours,

J. B. SCATCHARD  
LCDR, SC, USN  
Contracting Officer

Encls:

1. Three (3) copies of the subject task order(s)
2. Instructions Respecting Execution

CC: CO, ONR - New York Br.  
Code 265  
5-26-50

B-7829





CONTRACT NUMBER: N6onr-27013

This draft has been approved as follows:

(b) (6)

*for J. Quinby*  
Physiology Branch, BioSciences Division

(b) (6)

D. B. Packwood, Negotiator

ENCLOSURES:

- (A) Clear Memo dtd 10 May 1950
- (B) Proc Just dtd 17 April 1950
- (C) Contractor's proposal dtd 10 April 1950



DEPARTMENT OF THE NAVY  
OFFICE OF NAVAL RESEARCH  
CONTRACT NUMBER: N6onr-27013

RESEARCH AND DEVELOPMENT TASK ORDER

CONTRACTOR: The Trustees of Princeton University  
AUTHORITY: NR 119-048/4-17-50 (Biological Sciences Division)  
APPROPRIATION: 1701317, Research, Navy, 1950 (Expenditure Account 46110)  
(Object Classification 079) Program Number 41000  
ESTIMATED COST: \$5,500.00

This Task Order is established under, and constitutes a part of, Contract N6onr-270, which sets forth the basic contract provisions applicable hereto. In case of any conflict between the provisions of said Contract N6onr-270 and the provisions hereof, the latter shall control.

SECTION A - The Contractor shall furnish the necessary personnel and facilities ~~for~~ and, in accordance with any instructions issued by the Scientific Officer or his authorized representative, shall conduct research on the theoretical chemistry of biological reactions. This research shall include, but not necessarily be limited to:

- (a) The origin and meaning of the modern reaction rate theory;
- (b) Application of the theory in connection with various biological phenomena; *and*
- (c) A theoretical consideration of some fundamental problems, particularly muscle contraction, permeability nerve activity, photosynthesis and possibly others.

SECTION B - The Scientific Officer under this Task Order is the Head, Physiology Branch, Biological Sciences Division, Office of Naval Research.

SECTION C - The estimated cost of the performance of this Task Order is five thousand five hundred dollars (\$5,500.00).

SECTION D - Notwithstanding the provisions of Section 4(a)(7) of the contract to the contrary, the percentage to be applied with respect to this Task Order shall be a fixed rate of ten percent (10%) of the total cost of the work to be performed under this Task Order exclusive of costs incurred under this Section. Notwithstanding any provisions of the contract to the contrary, said rate shall remain fixed for the life of this Task Order.

It is understood by and between the parties, <sup>hereto</sup> that the overhead rate expressed herein represents less than actual cost reimbursement for indirect expenses. The difference between the expressed overhead rate and the actual cost rate experienced by the Contractor represents a sharing on the part of the Contractor of the total estimated cost of this Task Order.

SECTION E - The Contractor shall submit final reports and all other reports as may be required by the Scientific Officer hereinafter. These reports shall, in detail, be deemed as indicated below:

PERIODIC STATUS REPORTS may be issued at intervals of not greater than three months. The exact frequency shall be specified by the Scientific Officer in accordance with the Contractor and the Branch Office.

TECHNICAL REPORTS may be issued when a phase of a project has been completed or when important information has been obtained regarding the progress of the distribution.

FINAL REPORTS, issued at the completion of the work, shall summarize the results of the work and shall contain a listing thereof of Technical Reports and publications which have been issued. They shall be a record of the work being performed and of the results.

SECTION F - The Contractor agrees to provide instructions with respect to work to be performed under this Task Order to Naval personnel assigned by the Navy Department, and acceptable to the Contractor.

SECTION G - The Contractor, in connection with the performance of this Task Order, shall not employ any persons undergoing sentences of imprisonment at hard labor which have been imposed by courts of the several states, territories or municipalities having criminal jurisdiction.

SECTION H -

The Contractor agrees that there will be delivered under this contract only such unmanufactured articles, materials, and supplies (which term "articles, materials, and supplies" is hereinafter referred to in this clause as "supplies") as have been mined or produced in the United States, and only such manufactured supplies as have been manufactured in the United States substantially all from supplies mined, produced, or manufactured, as the case may be, in the United States. Pursuant to the Buy American Act (41 U. S. Code 10 a-c), the foregoing provision shall not apply (i) with respect to supplies excepted by the Secretary from the application of that Act, (ii) with respect to supplies for use outside the United States, (iii) with respect to the supplies to be delivered under this contract which are of a class or kind determined by the Secretary or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, or (iv) with respect to such supplies, from which the supplies to be delivered under this contract are manufactured, as are of a class or kind determined by the Secretary or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, provided that this exception (iv) shall not permit delivery of supplies manufactured outside the United States if such supplies are manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality.



////////////////////

SECTION I - In addition to <sup>the</sup> requirements set forth in Section 3 of the contract, entitled "Subcontracts and Purchase Orders," the Contractor shall give advance notification to the Contracting Officer or his authorized representative before entering into any subcontract or purchase order incident to the performance of this Task Order which

- (1) is on a cost or cost-plus-fixed-fee basis, or
- (2) is on a fixed-price basis exceeding in dollar amount \$25,000.00 or 5% of the total estimated cost of this Task Order.

SECTION J - Termination by the Government: In lieu of the provisions of Section 10 of the contract, entitled "Termination by the Government," the following provision shall be applicable to this Task Order:

The performance of work under this Task Order may be terminated by the Government whenever the Contracting Officer shall determine that such action is for the best interests of the Government. If this Task Order is so terminated, the Government shall reimburse the Contractor for the costs and expenses specified in subparagraphs (1), (2), and (3) of paragraph (A) of the Uniform Termination Article, which is set forth in paragraph 932 of the War and Navy Department Joint Termination Regulation, to the extent that the provisions of said Uniform Termination Article may be applicable to the work hereunder.

SECTION K - In the event that the work under this Task Order is terminated in whole, or from time to time in part at the action of the Government pursuant to the provisions of Section J of this Task Order, the Government shall not be obligated to pay to the Contractor any amount for anticipatory profits resulting from the termination or cancellation of any subcontract or order relating to this Task Order.

CONTRACT NUMBER: N6onr-27013

SECTION L - Notwithstanding any provisions of subsection 4(a)(4) of the contract to the contrary, the Contractor shall be reimbursed under this Task Order for the transportation expenses of persons engaged in the performance of this Task Order, plus the reasonable actual subsistence expenses in an amount not exceeding ten dollars (\$10.00) per person per day, of such persons, incurred during periods of travel, or, at the Contractor's option, an allowance in lieu of actual subsistence expenses of such persons not exceeding nine dollars (\$9.00) per person for each calendar day or major fraction thereof during the period of travel; Provided, That, expenses for transportation hereunder by motor vehicle other than common carrier or rented automobile shall be reimbursed on a reasonable actual expense basis or, at the Contractor's option, on a mileage basis at a rate not to exceed seven cents (7¢) per mile; Provided, Further, that in no event shall reimbursement under this subsection be made to the Contractor at rates exceeding those allowed by the Contractor to similar employees engaged upon work other than work under Government contracts.

15 SECTION M - The performance of work under this Task Order shall commence on 6 June 1950, and shall be completed on 14 September 1951.



CLEARANCE MEMORANDUM

Contract N6onr-27013  
NR 119-C48/4-17-50

Unclassified  
10 May 1950

The Trustees of Princeton University  
Princeton, New Jersey

1. Negotiations

The Contractor submitted a proposal, dated 10 April 1950, for research on the theoretical chemistry of biological reactions. The proposed research is to be conducted during a fifteen month period at an estimated cost of \$5,500.00. The purpose of the project was to set forth the modern theory of absolute reaction rates with specific reference to its application in the investigation and understanding of fundamental biological phenomena.

The proposal was approved scientifically and a procurement justification dated 17 April 1950, was issued which made funds in the amount of \$5,500.00 available for the proposed research. The undersigned was informed by the cognizant Scientific Branch (Physiology), that the salary item set forth in the budget was for the Principal Investigator, Dr. Frank H. Johnson, and that the assistant on this project, Dr. Henry Eyring, would be used at no cost to the project.

The items of estimated cost for the proposed extension are set forth in paragraph 4, below.

2. Description of the Work

The Contractor shall furnish the necessary personnel and facilities for and, in accordance with any instructions issued by the Scientific Officer or his authorized representative, shall conduct research on the theoretical chemistry of biological reactions. This research shall include but not necessarily be limited to:

- (a) The origin and meaning of the modern reaction rate theory
- (b) Application of the theory in connection with various biological phenomena
- (c) A theoretical consideration of some fundamental problems, particularly muscle contraction, permeability nerve activity, photosynthesis and possible others.

3. Information Regarding the Contractor

The Scientific Officer states that the Principal Investigator has applied the theory of absolute reaction rates to several problems of physiological interest and Dr. Eyring and his associates of Utah University have recently published studies on the basic aspects of permeability, photosynthesis and nerve activity.

Because of the theoretical nature of this investigation, the personnel concerned are stated to be the most important phase of this research and both Dr. Johnson and Dr. Eyring are stated to be leading authorities on the application of kinetics to biological reactions.

4. Analysis of the Cost Estimate

The items of estimated cost for the proposed fifteen month period of the contract commencing 15 June 1950 and ending 14 September 1951, are as follows:

Dr. Frank H. Johnson, Principal Investigator, salary half-time for academic year Sept. 1, 1950 through June 30, 1951 (salary for other half-time to be contributed by Princeton University on sabbatical leave basis)

Salary for two summer periods

Travel expenses (to visit Utah U., ONR, Washington, D. C. and to scientific meetings)

Total direct costs

Overhead at 10% (compared with Navy audited rate of 66.5%)

Total

\$5,500.00

The Contractor states that adequate office, laboratory, and library facilities are available.

5. Overhead

Notwithstanding the provisions of Section 4(a)(7) of the contract to the contrary, the percentage to be applied with respect to this Task Order shall be a fixed rate of ten percent (10%) of the total cost of the work to be performed under this Task Order exclusive of costs incurred under this Section. Notwithstanding any provisions of the contract to the contrary, said rate shall remain fixed for the life of this Task Order.

It is understood by and between the parties that the overhead rate expressed herein, represents less than actual cost reimbursement for indirect expenses. The difference between the expressed overhead rate and the actual cost rate experienced by the Contractor represents a sharing on the part of the Contractor of the total estimated cost of this Task Order.

6. Facilities and Subcontracting

No facilities will be purchased by the Contractor as a charge against this project, and no subcontracting is anticipated.



7. Special Provisions

This Task Order shall contain the following special provisions:

- (A) Special Reports Clause (Princeton University)
- (B) Medical Training of Naval Personnel Clause
- (C) Convict Labor Clause
- (D) The New Buy American Clause
- (E) The new Termination Clauses

NOTE: The new Foreign Patents Clause shall not be included in this Task Order.

8. Other Pertinent Information

This negotiated Task Order is entered into pursuant to the provisions of Section 2(c)(5) of the Armed Services Procurement Act of 1947 (Public Law 413, 80th Congress), and the required determination and findings with respect thereto has been made in ONR D&F Number 3200.

9. Naval Application

The Scientific Officer states that the effect of temperature and pressure on biological process will be of interest to the Navy in its efforts to set up physiological limitations of flight personnel.

10. Reasonableness

The items of estimated cost and the contractual terms, as set forth above, are considered fair, reasonable, and in the interest of the Government.

(b) (6)

D. B. PACKWOOD

(Submit Original and four copies)

SECURITY CLASSIFICATION  
U

TYPE PROJECT  
☒ NEW ☐ RE-NEWAL

PROJECT DESIGNATION NO.

NR 119-048

CONTRACT NO.

216000 27013

TASK ORDER

DATE

17 Apr 1950

ONR SCIENTIFIC OFFICER

Dr. F. H. Quimby

(Signature)

CONTRACTOR AND ADDRESS

Princeton University  
Princeton, New Jersey

PRINCIPAL INVESTIGATOR

Dr. Frank H. Johnson

PROJECT TITLE

The Theoretical Chemistry of  
Biological Reactions

Do not write in this space

F.D. NO.

PROGRAM NO.

4100

APPROPRIATION(S)

1701317, RESEARCH, NAVY, 1950

OBJECT CLASS

079

EXPENDITURE ACCOUNT NO.

46110

ESTIMATED MAN YEARS

ESTIMATED COMPLETION DATE  
TOTAL PROJECT

PROF.

GRAD.  
STUD.

CAN ANY GOVERNMENT AGENCY DO  
THIS WORK IN THE TIME SPECIFIED?

☐ YES ☒ NO

REPORTS REQUIRED

(Quarterly, monthly, etc.)

FISCAL ESTIMATES

THIS COMMITMENT (EST.)

PAST  
1947

PAST  
1948

FUTURE  
1950

FUTURE  
1951

DURATION

15 June 50  
5/1/50

(b) (6)

18 Sept 51

(b) (6)

TO

5/31/51

(b) (6)

6 STATUS

35 SCIENTIFIC  
AND/OR TECHNICAL

☐ OTHERS: AS  
REQUESTED OR

at discretion of the Contractor,  
manuscripts submitted for  
publication and reprints

☐ FINAL

WHY WAS THIS CONTRACTOR SELECTED?

Because of the theoretical nature of this investigation, the personnel concerned are the most important phase of this research. Dr. F. H. Johnson and Dr. Henry Eyring (consultant) are both leading authorities on application of kinetics to biological reactions.

Funds Committed

Amt 5,500.00

Date 4/24/50 By (b) (6)

INTERESTED AGENCIES CORRESPONDENCE NOT ATTACHED, ETC.:

"It is requested that the following or similar language be placed on the resulting obligation document: This contract to be treated for Navy accounting purposes as a formal obligation in the amount of

(b) (6)

(b) (6)

(b) (6)

APPROVED:

(b) (6)

(1) F. H. QUIMBY

HEAD (Branch) Acting Physiology

(b) (6)

(2) U. E. REYNOLDS

DIRECTOR (Division) Biological Sciences

(3)

SCIENCE DIRECTOR, RESEARCH

(4)

ASST. CHIEF FOR RESEARCH

(5)

DEPUTY AND ASSISTANT CHIEF OF NAVAL RESEARCH

ENCLOSURES: (a) Original copy of proposal & contractor's business office approval  
(b) Justification and Brief (Use reverse side)



# JUSTIFICATION AND BRIEF

NR 119-048

Include: (1) Scientific Justification (2) Brief of Project (3) Possible Naval Application

(1) Although the theory of absolute reaction rates, introduced in 1935, is now extensively used in both theoretical and applied research in chemistry and related fields, it is not generally familiar to investigators of biological problems. The principal investigator has applied this theory to several problems of physiological interest and Dr. Eyring and his associates of Utah University have recently published studies on the basic aspects of permeability, photosynthesis and nerve activity. Except for this isolated work, relatively few attempts have been made to use the modern rate theory in the interpretation of biological problems. An effort will be made in this research program to eliminate the "lag" between the advances in theoretical chemistry and physics and in the application of these to biological reactions.

(2) The work involves essentially three parts:

- a. The origin and meaning of the modern reaction rate theory
- b. Application of the theory in connection with various biological phenomena
- c. A theoretical consideration of some fundamental problems, particularly muscle contraction, permeability nerve activity, photosynthesis and possibly others.

(3) Because of the fundamental nature of this research and the consideration of basic principles of biological phenomena, the application to the Navy will be general to all of its medical endeavors. A better understanding of bacterial action will be applicable to BW. Denaturation studies can be applied to blood coagulation and treatment of wounds. Enzyme studies will increase our understanding of nerve activity and specifically radiation injury. Effect of temperature and pressure on biological process will be of interest to the Navy its efforts to set up physiological limitations of flight personnel. This subtask constitutes a part of the parent project on Physical Factors Operating in Biological Sciences and supports Operational Requirement BR-03800

It is requested that the Contracting Officer indicate to the Contractor the desirability of assigning certain Naval personnel, either Regular or Reserve, to duty in connection with the investigations to be conducted by the Contractor for the purpose of receiving instruction in this type of work. It is understood that such assignments will be made only with the full consent of the Contractor.

DR. JAMES H. COMBSON

PROFESSOR, DEPT. OF CHEMISTRY

UNIVERSITY OF UTAH

DR. J. H. COMBSON

PROFESSOR, DEPT. OF CHEMISTRY

UNIVERSITY OF UTAH

DR. J. H. COMBSON

PROFESSOR, DEPT. OF CHEMISTRY

UNIVERSITY OF UTAH

DR. J. H. COMBSON

PROFESSOR, DEPT. OF CHEMISTRY

UNIVERSITY OF UTAH

PROPOSAL FOR RESEARCH  
TO THE  
OFFICE OF NAVAL RESEARCH  
ON  
THE THEORETICAL CHEMISTRY OF BIOLOGICAL REACTIONS

Frank H. Johnson, PhD  
(Associate Professor of Biology, Princeton University)

Princeton University  
Princeton, N. J.  
April 10, 1950



## Purpose

The purpose of the work proposed herewith is to set forth the modern theory of absolute reaction rates with specific reference to its application in the investigation and understanding of fundamental biological phenomena. It is essentially a theoretical project and will require collaboration with Dr. Henry Eyring who has been chiefly responsible for the introduction of the modern theory. The results should substantially aid basic research in biochemistry, biophysics, physiology, pharmacology, bacteriology and other fields of biology or medicine, and when completed could be most appropriately published in the form of a monograph.

## Background and Present Status

Although the theory of absolute reaction rates, introduced in 1935, is now extensively used in both theoretical and applied research in chemistry and related fields, it is not yet generally familiar among investigators of biological problems. The first application of the theory to a process in living material was with reference to bioluminescence, in 1942, by the present author in collaboration with Eyring and others. Some fundamental biological relationships were discovered at that time, especially with reference to the action of temperature, pressure, narcotics and other inhibitors or accelerators of physiological interest. Analytical formulations were derived which have been successfully used in later work dealing with such diverse phenomena as growth rates, action of chemotherapeutic agents and narcotics, activity of extracted enzymes in crude and crystallized preparations, denaturation of proteins, virus (bacteriophage) multiplication, and others. The majority of these studies have been carried out by the authors presently concerned, with their co-workers. (Cf, accompanying list of references). Eyring and his associates at Utah have recently published studies on the basic aspects of permeability, photosynthesis and nerve activity.

Except for the work referred to above, relatively few attempts have been made to use the modern rate theory in the interpretation of biological problems.

In this field the theory is only very gradually becoming known, even though it is of fundamental importance. The reasons for this "lag" are chiefly two: (1) advances in theoretical chemistry and physics during the past decade have been so immense that it has been virtually impossible for specialists in the biological sciences to keep up with them, and (2) the theoretical advances have to a large extent been clothed in such highly technical and mathematical language that they have not been readily available to biological workers in general. It should be possible, through the proposed work, to eliminate some of this continuing lag between the advances of biology and those of chemistry. The physical chemical theory will be set forth including adequate mathematical details but with sufficient discussion to make it more generally understandable and useful, along with specific applications to biological reactions. No comprehensive treatment of this sort is available at present.

#### Technical Description

The work involves essentially three parts:

- I. The origin and meaning of the modern reaction rate theory; the "activated complex"; derivation of the universal frequency applicable to all reactions,  $k = (kT/h)K^*$ ; relation of the equilibrium between normal and activated states ( $K^*$ ) to the thermodynamic equilibrium between initial and final states; relation to the Arrhenius equation, etc.
- II. Application of the theory in connection with various biological phenomena, e.g., respiration, reproduction, growth, enzyme activity, virus activity, action of inhibitors and accelerators including narcotics, chemotherapeutic agents, specific inhibitors, growth factors, co-enzymes, etc; mechanism of action of temperature, hydrostatic pressure, ions and other factors; role of reversible and irreversible protein denaturation; the general mechanisms of reaction



rate control in living systems.

III. A theoretical consideration of some fundamental problems, particularly muscle contraction, permeability, nerve activity, photosynthesis, and possibly others.

The treatment in both parts II and III will be based on data which have been partially analyzed in recent publications of the authors, and also on such data of other investigators as appear satisfactory for analysis. Much of the available data bearing on these problems are not adequate for analysis; it will be one of the functions of this work to indicate what is needed in further investigations.

In addition to treatment of existing quantitative data, it is proposed to give further, purely theoretical consideration to these basic problems in effort to advance the understanding of them.

#### Chief Investigator and Background

Frank H. Johnson, A.B. (Princeton, 1931), A.M. (Duke, 1932), Ph.D. (Princeton, 1936); Eli Lilly and Co. Research Fellow, Princeton, 1936-37; Instructor in Biology, Princeton, 1937-41; Assistant Professor, 1942-46; Associate Professor, 1946- ; Rockefeller Fellow, Delft and Utrecht, Netherlands, 1939, for biophysical research; Guggenheim Fellow, California Institute of Technology and Marine Biological Laboratory, Woods Hole, 1944-46; AAAS Thousand Dollar Prize, with D. E. Brown and D. A. Marsland, 1941-42; Chief investigator, during period between 1942-1950, in projects under CMR of the O.S.R.D., the Chincona Products Research Institute; and the American Cancer Society; Member, AAAS, American Physiological Society, American Society of Zoologists, Society of General Physiologists; Society of American Bacteriologists; Society for Experimental Biology and Medicine, New York Academy of Sciences, Sigma Xi, Phi Beta Kappa; technical publications (cf., list of references on accompanying pages) on basic problems of the action of temperature, pressure, nar-

cotics, inhibitors, etc., on metabolic reactions, growth, protein denaturation and others.

## Methods

The work is primarily theoretical, involving discussions, calculations and considerations based on available data.

## Equipment

No new equipment is required.

### Duration and Cost

The budget for a fifteen-month project from June 15, 1950 through September 15, 1951 is proposed as follows:

proposed as follows:  
*Dr Frank H Johnson - Principal Invest.*  
 Salary half-time for academic year Sept. 1, 1950 through June 30, 1951 (salary for other half-time to be contributed by Princeton University on sabbatical leave basis)

Salary for two summer periods

Travel expenses (to visit Utah U., ONR, Wash.DC.,  
and to scientific meetings)

Overhead at 10% (compared with Navy audited rate of 66.5%)

Total	\$5,500
-------	---------

## Facilities

Adequate office, laboratory and library facilities are available.

(b) (6)

Frank H. Johnson, Chief Investigator,  
Associate Professor, Biology

(b) (6)

~~Raymond S. Woodrow, Executive Officer &  
Secretary, Committee on Project Research &  
Inventions~~

April 10, 1950



PUBLICATIONS, 1942 - 1950  
BY F. H. JOHNSON AND COLLABORATORS  
RELATED TO SUBJECT OF PROPOSED WORK

---

- 1942      A basic mechanism in the biological effects of temperature, pressure and narcotics. F. H. Johnson, D. E. Brown and D. A. Marsland. Science, 95:200-203\*
- \* AAAS Thousand Dollar Price, 1941-42.
- The sulfonamide and urethane inhibition of Cypridine luminescence in Vitro. F. H. Johnson and A. M. Chase. J. Cell. Comp. Physiol., 19:151-161.
- The pressure-temperature relations of bacterial luminescence. D. E. Brown, F. H. Johnson and D. A. Marsland. J. Cell. Comp. Physiol., 20:151-168.
- The nature of enzyme inhibitions in bacterial luminescence: sulfanilamide, urethane, temperature and pressure. F. H. Johnson, H. Eyring, and R. W. Williams. J. Cell. Comp. Physiol., 20:247-268.
- Pressure reversal of the action of certain narcotics. F. H. Johnson, D. E. Brown and D. A. Marsland. J. Cell. Comp. Physiol., 20:269-276.
- 1943      Calculation of enzyme-inhibitor equilibrium constants in relation to changes in optimum temperature. F. H. Johnson and H. Eyring. Fed. Proc., 2:25.
- A quantitative theory of synergism and antagonism among diverse inhibitors, with special reference to sulfanilamide and urethane. F. H. Johnson, H. Eyring, and W. Kearns. Arch. Biochem., 3:1-31.
- A study of luminous bacterial cells and cytolysates with the electron microscope. F. H. Johnson, N. Zworykin and G. Warren. J. Bact., 46:167-185.
- 1944      The volume change accompanying the "Quellung" reaction of Pneumococci. F. H. Johnson and W. L. Dennison. J. Immun., 48:317-323.
- Observations on the electron microscopy of B. cereus and tyrothricin action. F. H. Johnson. J. Bact., 47:551-557.
- The nature of the luciferin-luciferase system. F. H. Johnson and H. Eyring. J. Am. Chem. Soc., 66:848.
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The retardation of thermal disinfection of Bacillus subtilis spores by hydrostatic pressure. F. H. Johnson and C. E. ZoBell. J. Bact., 57:353-358.

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The influence of buffer composition, pH and aggregation on the thermal denaturation of tobacco mosaic virus. D. Fraser and F. H. Johnson. Arch. Biochem., 24:338-349.

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Relation of oxygen to photo-reactivation of bacteria after ultraviolet radiation. F. H. Johnson, E. A. Flagler and F. H. Blum. Proc. Soc. Exp. Biol. Med., in press.

Luminous bacteria and their contribution to the theory of biological reactions. F. H. Johnson. Chapter in book on bacterial physiology, Edited by C. H. Werkman and P. W. Wilson, in press.

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The pressure temperature relationship in the rate of casein digestion by trypsin. D. Fraser and F. H. Johnson.

The influence of hydrostatic pressure and pH on the rate of bacterial lysis by lysozyme. D. E. Holyoke and F. H. Johnson.

The influence of hydrostatic pressure on lysis of E. coli by bacteriophage. F. H. Johnson, R. C. Foster and E. A. Flagler.

The action of urethane on the multiplication of E. coli bacteriophages. R. C. Foster and F. H. Johnson.

The influence of hydrostatic pressure on the one-step growth curves of E. coli bacteriophages. R. C. Foster and F. H. Johnson.

The inhibition of bacterial luminescence by a homologous series of urethanes and derivatives, in relation to temperature, pressure and concentration. F. H. Johnson, R. Simpson and E. A. Flagler.

The influence of hydrostatic pressure on adaptive enzyme formation in yeast. F. H. Johnson and J. Tucker.

The pressure-temperature-urethane relations of the Cyridina reaction in Vitro. E. N. Harvey and F. H. Johnson.



DEPARTMENT OF THE NAVY  
OFFICE OF NAVAL RESEARCH  
WASHINGTON 25, D. C.

EXECUTED BY BOTH PARTIES

CONTRACT NUMBER: N6onr-27013  
AMENDMENT NUMBER: 1  
AUTHORITY: NR 119-048/1-15-52  
APPROPRIATION: (See last paragraph hereof)  
INCREASE: \$1,918.00

ONR:262;JR:sjb  
N6onr-27013  
(Biological Sciences  
Division)

The Trustees of Princeton University

Princeton, New Jersey

Gentlemen:

14 SEP 1951

It is the desire of the Government and the Contractor that additional research on the theoretical chemistry of biological reactions be performed. To accomplish this, there are hereby provided an extension in the period of performance of Task Order N6onr-27013 and an increase in the estimated cost thereof.

In consideration of the foregoing, said Task Order is hereby amended as follows:

1. At the top of the first page, delete the Appropriation and Estimated Cost in their entirety and substitute in lieu thereof the following:

"APPROPRIATIONS: 1701317, Research, Navy, 1950  
(Expenditure Account 46110)  
(Object Classification 079)  
Program Number 41000

- \$ (b) (4)

17X1317.20 Research Navy  
(Expenditure Account 46000)  
(Object Classification 079)  
Program Number 41000

-

"ESTIMATED COST: \$7,418.00."

2. Delete Section C in its entirety and substitute in lieu thereof the following:

"SECTION C - The estimated cost of the performance of this Task Order is seven thousand four hundred eighteen dollars (\$7,418.00)."

3. Delete Section L in its entirety and substitute in lieu thereof the following:

"SECTION L - The performance of work under this Task Order shall commence on 15 June 1950, and shall be completed on 14 September 1952."

4. Add the following new Sections, effective 15 September 1951:

CONTRACT NUMBER: N6onr-27013  
AMENDMENT NUMBER: 1

"SECTION M - The Contractor agrees to participate in the cost of this Task Order to the extent of providing the services of the Project Director, Dr. Frank H. Johnson (or whosoever else may be designated to replace Dr. Johnson in the performance of this Task Order with the approval of the Scientific Officer) without charge to this Task Order; provided, that the salary of Dr. Johnson for two (2) summer months of 1952 not covered by his academic salary shall be considered an allowable cost hereunder and reimbursement will be made to the Contractor therefor.

"SECTION N - (a) The Contractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of three years after final payment under this contract, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Contractor involving transactions related to this contract.

(b) The Contractor further agrees to include the following provision, with appropriate insertions, in all his subcontracts hereunder:

(Name of Subcontractor) agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of three years after final payment under prime contract (contract symbol and number) between the United States of America and (Name of Contractor) have access to and the right to examine any directly pertinent books, documents, papers, and records of (Name of Subcontractor) involving transactions related to this contract.

(c) The requirements of this clause are in addition to the provisions of any other clause of this contract relating to the records of the Contractor.

"SECTION O - (1) The Government may, by written notice to the Contractor, terminate the right of the Contractor to proceed under this contract if it is found, after notice and hearing, by the Secretary or his duly authorized representative, that gratuities (in the form of entertainment, gifts, or otherwise) were offered or given by the Contractor, or any agent or representative of the Contractor, to any officer or employee of the Government with a view toward securing a contract or securing favorable treatment with respect to the awarding or amending, or the making of any determinations with respect to the performing, of such contract; provided, that the existence of the facts upon which the Secretary or his duly authorized representative makes such findings shall be in issue and may be reviewed in any competent court.

(b) In the event this contract is terminated as provided in paragraph (a) hereof, the Government shall be entitled (i) to pursue the same remedies against the Contractor as it could pursue in the event of a breach of the contract by the Contractor, and (ii) as a penalty in addition to any other damages to which it may be entitled by law, to exemplary damages in an amount (as determined by the Secretary or his duly authorized representative)



CONTRACT NUMBER: N6onr-27013  
AMENDMENT NUMBER: 1

which shall be not less than three nor more than ten times the costs incurred by the Contractor in providing any such gratuities to any such officer or employee.

"(c) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract."

This amendment increases the total estimated cost of Task Order N6onr-27013 by \$1,918.00, which increase is chargeable against Appropriation 17X1317.20 Research Navy (Expenditure Account 46000) (Object Classification 079) Program Number 41000.

CONTRACT NO. N6onr-27013

AMENDMENT NO. 1

This amendment is made pursuant to the provisions of Section 2(c)1 of the Armed Services Procurement Act of 1947 (Public Law 413, 80th Congress), and any required determination and findings with respect thereto has been made.

If the foregoing is acceptable to you, please indicate your acceptance thereof by executing the enclosed two (2) copies of this letter, and return them to the Office of Naval Research, whereupon this letter and your acceptance thereof will constitute this an amendment to the above numbered Task Order.

Sincerely yours,

Contracting Officer  
Office of Naval Research  
Department of the Navy

WITNESSES:

THE TRUSTEES OF  
ACCEPTED PRINCETON UNIVERSITY  
(Contractor)

(1) \_\_\_\_\_

(2) \_\_\_\_\_

By \_\_\_\_\_

NOTE:

in the case of a corporation  
witnesses are not required but  
certificate below must be completed.

TITLE \_\_\_\_\_

### CERTIFICATE

the \_\_\_\_\_, certify that I am  
ment; that Secretary of the corporation named as Contractor in the foregoing amend-  
tractor was then , who signed said amendment on behalf of the Con-  
was duly signed for and in behalf of said corporation by authority of its governing body and is within the scope  
of its corporate powers. of said corporation; that said amendment

\_\_\_\_\_  
(Signature of person certifying)

(CORPORATE SEAL)



Revised  
20 May 1948

Determination and Findings

Method of Contracting

D&F No. 3200

Upon the basis of the following findings and determinations which I hereby make as a Contracting Officer pursuant to the provisions of Section 7 of the Armed Services Procurement Act of 1947 and authority delegated thereunder, the proposed contract may be entered into on a cost basis, pursuant to the authority of Section 4(b) of said Act, for research on the theoretical chemistry of biological reactions,

with PRINCETON UNIVERSITY.

FINDINGS

1. The proposed contract has an estimated cost of \$5,500.00 , without any fixed fee.
2. Negotiation of the proposed contract is authorized under Section 2(c)5 of the Armed Services Procurement Act of 1947.
3. The exact nature and extent of the work covered by the proposed contract, and the precise method of performing that work, cannot be established in advance, but must be freely subject to improvisation and change as the work progresses.
4. The costs of performing the work under the proposed contract cannot be accurately forecast so as to permit the undertaking of such work for a fixed price.

DETERMINATIONS

1. It is impracticable to secure services of the kind or quality required without the use of the proposed type of contract.
2. The estimated cost of the proposed contract is \$5,500.00 .

(b) (6)

26 MAY 1950

Lieut. Comdr., SC, USN  
Contracting Officer  
Office of Naval Research  
Department of the Navy



DEPARTMENT OF THE NAVY  
OFFICE OF NAVAL RESEARCH  
WASHINGTON 25, D. C.

IN REPLY REFER TO  
ONR:262:FDB  
N6onr-27013  
Ser

13100

The Trustees of Princeton University

Princeton, New Jersey

Gentlemen:

In compliance with the request contained in your letter GAB:RJW:g dated 1 June 1950, the proposed Section F of Task Order N6onr-27013, containing provisions for instruction of Naval personnel thereunder, has been deleted in its entirety and the remaining Sections relettered accordingly. One (1) copy each of the revised pages 2 and 3 of the aforementioned Task Order is being forwarded herewith to be substituted in the copy of the document retained by you.

It is requested that you indicate your acceptance of the Task Order, as revised, by signing the acceptance form on the enclosed copy of this letter and returning it to this Office, Attention: Code 265.

Sincerely yours,

Encl:

- (1) One (1) copy each revised pages 2 and 3  
of Task Order N6onr-27013
- (2) CC this letter

ACCEPTED: TRUSTEES OF PRINCETON UNIVERSITY  
(Contractor)

BY **(b) (6)**

George A. Brakeley

TITLE Vice President & Treasurer



RECEIVED



**EXECUTED BY BOTH PARTIES**

DEPARTMENT OF THE NAVY  
OFFICE OF NAVAL RESEARCH  
CONTRACT NUMBER: N6onr-27013

RESEARCH AND DEVELOPMENT TASK ORDER

**26 MAY 1950**

CONTRACTOR: The Trustees of Princeton University  
AUTHORITY: NR 119-048/4-17-50 (Biological Sciences Division)  
APPROPRIATION: 1701317, Research, Navy, 1950 (Expenditure Account 46110)  
(Object Classification 079) Program Number 41000  
ESTIMATED COST: \$5,500.00

This Task Order is established under, and constitutes a part of, Contract N6onr-270, which sets forth the basic contract provisions applicable hereto. In case of any conflict between the provisions of said Contract N6onr-270 and the provisions hereof, the latter shall control.

SECTION A - The Contractor shall furnish the necessary personnel and facilities for and, in accordance with any instructions issued by the Scientific Officer or his authorized representative, shall conduct research on the theoretical chemistry or biological reactions. This research shall include, but not necessarily be limited to:

- (a) the origin and meaning of the modern reaction rate theory;
- (b) application of the theory in connection with various biological phenomena; and
- (c) a theoretical consideration of some fundamental problems, particularly muscle contraction, permeability nerve activity, photosynthesis and possibly others.

SECTION B - The Scientific Officer under this Task Order is the Head, Physiology Branch, Biological Sciences Division, Office of Naval Research.

SECTION C - The estimated cost of the performance of this Task Order is five thousand five hundred dollars (\$5,500.00).

SECTION D - Notwithstanding the provisions of Section 4(a)(7) of the contract to the contrary, the percentage to be applied with respect to this Task Order shall be a fixed rate of ten percent (10%) of the total cost of the work to be performed under this Task Order exclusive of costs incurred under this Section. Notwithstanding any provisions of the contract to the contrary, said rate shall remain fixed for the life of this Task Order.

It is understood by and between the parties hereto that the overhead rate expressed herein represents less than actual cost reimbursement for indirect expenses. The difference between the expressed overhead rate and the actual cost rate experienced by the Contractor represents a sharing on the part of the Contractor of the total estimated cost of this Task Order.



SECTION E - The Contractor shall submit final reports, and such other reports as may be required by the Scientific Officer hereunder. These reports shall, in detail, be issued as indicated below:

PERIODIC STATUS REPORTS may be issued at intervals not greater than three months; the exact periods will be specified by the Scientific Officer in consultation with the Contractor and the Branch Office.

TECHNICAL REPORTS may be issued when a definite phase of a project has been completed, or when significant information has been obtained which merits wider distribution.

FINAL REPORTS, issued at the completion of this Task Order, shall summarize the results obtained, and shall contain a listing therein of Technical Reports and publications which have been issued during the course of the work being performed hereunder.

SECTION F - The Contractor, in connection with the performance of this Task Order, shall not employ any persons undergoing sentences of imprisonment at hard labor which have been imposed by courts of the several states, territories or municipalities having criminal jurisdiction.

SECTION G - The Contractor agrees that there will be delivered under this contract only such unmanufactured articles, materials, and supplies (which term "articles, materials, and supplies" is hereinafter referred to in this clause as "supplies") as have been mined or produced in the United States, and only such manufactured supplies as have been manufactured in the United States substantially all from supplies mined, produced, or manufactured, as the case may be, in the United States. Pursuant to the Buy American Act (41 U. S. Code 10 a-c), the foregoing provision shall not apply (i) with respect to supplies excepted by the Secretary from the application of that Act, (ii) with respect to supplies for use outside the United States, (iii) with respect to the supplies to be delivered under this contract which are of a class or kind determined by the Secretary or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, or (iv) with respect to such supplies, from which the supplies to be delivered under this contract are manufactured, as are of a class or kind determined by the Secretary or his duly authorized representative not to be mined, produced, or manufactured, as the case may be, in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality, provided that this exception (iv) shall not permit delivery of supplies manufactured outside the United States if such supplies are manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality.



SECTION H - In addition to the requirements set forth in Section 3 of the contract, entitled "Subcontracts and Purchase Orders, the Contractor shall give advance notification to the Contracting Officer or his authorized representative before entering into any subcontract or purchase order incident to the performance of this Task Order which

(i) is on a cost or cost-plus-fixed-fee basis, or

(ii) is on a fixed-price basis exceeding in dollar amount \$25,000.00 or 5% of the total estimated cost of this Task Order.

SECTION I - Termination by the Government: In lieu of the provisions of Section 10 of the contract, entitled "Termination by the Government," the following provision shall be applicable to this Task Order:

The performance of work under this Task Order may be terminated by the Government whenever the Contracting Officer shall determine that such action is for the best interests of the Government. If this Task Order is so terminated, the Government shall reimburse the Contractor for the costs and expenses specified in subparagraphs (1), (2), and (3) of paragraph (d) of the Uniform Termination Article, which is set forth in paragraph 932 of the War and Navy Department Joint Termination Regulation, to the extent that the provisions of said Uniform Termination Article may be applicable to the work hereunder.

SECTION J - In the event that the work under this Task Order is terminated in whole, or from time to time in part, at the option of the Government pursuant to the provisions of Section I of this Task Order, the Government shall not be obligated to pay to the Contractor any amount for anticipatory profits resulting from the termination or cancellation of any subcontract or order relating to this Task Order.

SECTION K - Notwithstanding any provisions of subsection 4(a)(4) of the contract to the contrary, the Contractor shall be reimbursed under this Task Order for the transportation expenses of persons engaged in the performance of this Task Order, plus the reasonable actual subsistence expense in an amount not exceeding ten dollars (\$10.00) per person per day, of such persons, incurred during periods of travel, or, at the Contractor's option, an allowance in lieu of actual subsistence expenses of such persons not exceeding nine dollars (\$9.00) per person for each calendar day or major fraction thereof during the period of travel; Provided, That, expenses for transportation hereunder by motor vehicle other than common carrier or rented automobile shall be reimbursed on a reasonable actual expense basis or, at the Contractor's option, on a mileage basis at a rate not to exceed seven cents (7¢) per mile; Provided, Further, that in no event shall reimbursement under this Section be made to the Contractor at rates exceeding those allowed by the Contractor to similar employees engaged upon work other than work under Government contracts.

SECTION L - The performance of work under this Task Order shall commence on 15 June 1950, and shall be completed on 14 September 1951.



NAVEKOS 2185-17-1 (Rev. 10-47) CONTRACT NUMBER: N6onr-27013

/Section 2(c)5 of the Armed  
/Services Procurement Act of  
1947 (Public Law 413, 80th Con-  
gress), and any required determination and findings with respect thereto has been made.

The execution of this Task Order by the Contractor and the Government shall constitute this Task Order a part of Contract N6 onr-270, and be the agreement of the parties for the performance of the work herein specified, in accordance with the terms of such contract. In the event of any conflict between the terms contained in the parts of this contract, those contained in the Task Order shall be controlling with respect to the work to be performed thereunder.

IN WITNESS WHEREOF the parties hereto have executed this Task Order as of the day and year first above written.

### UNITED STATES OF AMERICA

By \_\_\_\_\_

Contracting Officer  
Office of Naval Research  
Department of the Navy

### WITNESSES:

(1) \_\_\_\_\_ Contractor

(2) \_\_\_\_\_ By \_\_\_\_\_

NOTE: In the case of a corporation  
witnesses are not required but  
certificate below must be completed.

TITLE \_\_\_\_\_

\_\_\_\_\_  
(Business Address of Contractor)

### CERTIFICATE

I, \_\_\_\_\_, certify that I am  
the Secretary of the corporation named as Contractor in the foregoing Task  
Order; that \_\_\_\_\_, who signed said Task Order on behalf of the  
Contractor was then \_\_\_\_\_ of said corporation; that said Task  
Order was duly signed for and in behalf of said corporation by authority of its governing body and is within the  
scope of its corporate powers.

\_\_\_\_\_  
(Signature of person certifying)

(CORPORATE SEAL)